

MINERAL STATISTICS OF THE UNITED KINGDOM FOR THE YEAR 1881—No. I.

This annual volume, issued from the Mining Record Office by Mr. ROBERT HUNT, F.R.S., has especial interest to all connected with the mining and metallurgical industries of the United Kingdom. The return for the year 1881 appears at an earlier date than many of its predecessors, and the valuable and reliable information it contains renders it welcome to our columns, exhibiting as it does, in hard matter of fact figures, the condition and development of our mineral resources, and their subsequent yield after passing through the smelting operations to which they are subjected before reaching the metallic state.

From the Reports of H. M. Inspectors of Mines for the year 1881, of which notice appeared in the *Mining Journal* of April 1, we stated fully in general summaries the production of minerals, the population employed, and other important points coming under the provisions of the "Coal and Metalliferous Mines Regulation Acts;" now we placed before our readers, from the pages of the Mineral Statistics, the yield of our mines, distinguishing the variety of metallic and earthy minerals, coal, &c., the metals produced, values of ores, and the total output of the mines of the United Kingdom in the year 1881. General summary of the mineral produce of the United Kingdom in the year 1881:—

Minerals.	Quantities. Tons.	Value. £.
Coal	154,184,300	0 0
Iron ore	17,446,065	6 6
Tin ore	12,898	3 3
Copper ore	52,556	1 1
Lead ore	64,702	5 5
Zinc ore	35,527	7 7
Iron pyrites	43,616	14 14
Gold ore	1 1	0 0
Silver ore	5 5	0 0
Cobalt and Nickel ore	63 14	309 12 8
Manganese	2,884	0 0
Wolfram	54 7	544 1 9
Ochre and Umber	7,966	9 9
Arsenic	6,156	8 8
Fluor-spar, &c.	372 14	253 10 0
Clays	2,401,421	0 0
Salt	2,298,220	0 0
Barytes	21,313	11 11
Sundry minerals, including coprolites, gypsum, calc spar, shales, &c.		349,500 0 0

Total value of minerals produced in 1881... £76,201,695 2 2
In the year 1880 the total value of minerals produced amounted to 74,094,638. 17s. 5d., from which it will be seen, compared with the returns of the past year, an increase in value of 2,107,056. 4s. 9d., the great increase in value being due to the increased production of coal in 1881 over 1880, amounting to 7,365,778 tons.

The ores raised in the year 1881, when reduced to the metallic state in the metallurgical works of the kingdom, yielded metals in the quantities given in the annexed table, with their respective values, according to the average market prices ruling during the year:—

Metals.	Quantities. Oz.	Value. £.
Gold	44	18
Silver from ore	1,650	360
Silver from lead	308,398	67,140
Pig-iron	8,144,449	20,361,122
Tin	8,615	839,680
Copper	3,875	263,500
Lead	48,587	728,805
Zinc	14,947	252,608
Other metals, estimated		1,275

Total value of metals produced in 1881... £22,514,508
The total value of minerals and metals obtained from the mines and other mineral workings of the United Kingdom in the year 1881 were as follows. The corresponding figures for the previous year are also given:—

	1881.	1880.
Coal	£65,528,327	£62,395,414
Metals, as above	22,514,508	21,582,501
Minerals, not reduced, salt, clays, &c.	2,817,652	3,539,635

Total value... £90,860,487... £87,517,550
Here as in the previous returns of minerals raised and of metals produced, the value exhibits a great increase, amounting to upwards of 3,342,000. compared with the previous year.

We shall now proceed to consider the returns of the production of the tin and copper mines of the United Kingdom.

TIN ORE, AND TIN RETURNS.—The total number of mines selling tin ore in 1881 was 95, of these 91 were in Cornwall and 5 in Devonshire, the quantity produced of tin ore (black tin) amounting to 12,898 tons, of the value of 697,444. The metallic tin obtained amounted to 8615 tons, giving at the average market price for the year a value of 839,680. The production of black tin, as above stated, is obtained from the tin mines, tin streams, rivers, and foreshores of Cornwall and Devonshire, as returned to the Mining Record Office, collated with returns made to the Duchy of Cornwall and for ore with H. M. Inspectors' Returns. Another source of information on this ancient industry appears in the returns of the tin smelters, who estimate the yield in 1881 at 12,900 tons of black tin, of the value of 696,600., giving of metallic tin 8600 tons, of the value of 838,178.

The following is a list of a few of the more important tin mines in Cornwall, giving the quantities of black tin produced and its value, the mines enumerated having produced upwards of 200 tons of black tin—the most productive mine in the list being that of Dolcoath, the next in production being East Pool, Carn Brea, West Basset, Eliza Consols, Tincroft, and Phoenix.

Mines.	Quantities. Tons.	Value. £.
Botallack	245	13,572 0 0
Levant	232	12,603 0 0
Wheal Owles	277	14,985 0 0
Wheal Sisters	369	19,422 0 0
Basset, West	862	44,626 0 0
Carn Brea	974	58,561 0 0
Condarrow, South	457	26,392 0 0
Dolcoath	1816	102,039 0 0
Frances, South Wheal	394	22,251 0 0
Frances, West Wheal	216	13,520 0 0
Grenville, Wheal	357	21,083 0 0
Peevor, Wheal	412	21,871 0 0
East Pool	1317	67,682 0 0
Tincroft	547	29,397 0 0
Eliza Consols	524	31,019 0 0
Phoenix and West Phoenix	505	27,483 0 0

The five tin mines producing ore in Devonshire yielded 15 tons, and of metal 10 tons, the value of the ore amounting to 807. The total quantity of black tin obtained from streams, rivers, and foreshores amounting to 957 tons, of the value of 36,169.

The production of metallic tin shows a falling off in recent years, prices on the other hand exhibit an improvement; this will be seen in the annexed and subsequent summaries.

The following gives the number of mines in Cornwall and Devonshire in each year since 1877, the quantity of ore (black tin) raised, and of metal (white tin) produced, together with the value:—

Years.	No. of mines.	Quantity—tons.	Value.
1877	98	14,142	£572,763
1878	90	15,045	530,737
1879	86	14,665	586,608
1880	91	13,737	673,142
1881	95	12,898	697,444

Prices of tin ore in 1881 show an upward tendency over previous years, the actual increase in price being 6. above that of 1880, and 14. per ton over the prices ruling in 1879. Metallic tin in like manner has advanced, the average price per ton of English block in 1881

being 97., compared with 91. 5s. in 1880, and 72. 6s. in 1879. The average price in the beginning of 1881 was 95. 10s., with slight fluctuations until September, when it reached 101. 10s., and towards the end of the year it advanced to 115.

The following were the prices of tin ore and metallic tin in each of the five years ending 1881:—

Year.	Tin ore.	Metallic tin.
1877	£40 10 0	£73 3 6
1878	35 5 6	65 12 3
1879	40 0 0	72 6 0
1880	49 0 0	91 5 0
1881	54 0 0	97 9 3

IMPORTS AND EXPORTS OF TIN.—The total quantity of metallic tin in the various forms of blocks, ingots, bars or slabs, and regulus imported in 1881 amounted to 406,958 cwt., of the value of 1,876,372., compared with 390,422 cwt., of the value of 1,737,189. in the previous year. The total exports of British tin unwrought in 1881 was 95,956 cwt., against 88,384 cwt. in 1880, the values amounting respectively to 460,324. and 399,175. The foreign and colonial tin exported in 1881 was greatly in excess of previous years, the returns for the five years ending 1881 being as under:—

Year.	Quantities—cwt.	Value.
1877	77,891	£276,592
1878	131,800	417,370
1879	176,873	620,379
1880	175,711	762,662
1881	202,284	926,279

BANCA TIN.—In 1881 the Dutch Trading Company's sales amounted to 4339 tons; the sales of Billiton tin, 4735 tons; the shipments of Straits tin to London reached 5795 tons, and to the United States 5680 tons. The exports of tin from Penang and Singapore were 11,475 tons, while the shipments of tin from the Australian ports of Sydney and Melbourne amounted to 9000 tons.

COPPER ORE AND METALLIC COPPER.—The number of mines selling ore in the United Kingdom in 1881 was 67, the ore sold 52,556 tons of the value of 19,057., the copper produced 3875 tons valued at 263,500. The general summary of production for the year 1881 is as follows, with the returns of 1880 side by side, for comparison:—

Countries.	1881—Ore.	Copper.	1880—Ore.	Copper.
ENGLAND.				
Cornwall	24,510	1881 1/2	26,737	2004
Devonshire	17,133	825	15,760	852
Lancashire	515	41	442	33
WALES.				
Cardiganshire	286	31	617	64
Cardarvon	1	3	—	—
Carnarvon	807	76	782	89
Merioneth	78	6 1/2	—	—
Montgomeryshire	—	—	81	6 1/2
Anglesea	7,043	768	4,841	318
ISLE OF MAN.	60	2	35	2 1/2
IRELAND	1,818	234	1,502	191
SCOTLAND	232	6 1/2	1,998	96
Precipitate, sundries, &c.	73	3	17	6
Total	52,556	3875	52,118	3662

The above quantities refer exclusively to the mines of the United Kingdom. In addition to the above there were sold of British Colonial, and Foreign ores and regulus in Swansea (where the ores were smelted) the following quantities in the year 1881:—

Where produced and sold.	Ore, regulus, &c. Tons.	Copper. Tons.
Total copper ore produce of United Kingdom	52,556	3,875
Colonial and foreign ores sold at the Swansea		
Ticketings	16,912	1,400
ditto not sold at Ticketings	85,893	7,110
Burnt ore from pyrites producing copper	396,737	14,000
Precipitate copper and regulus imported	44,385	19,973
Total	596,483	46,358

In the previous year the total quantities of copper ore, regulus, &c., amounted to 613,160 tons, yielding of metallic copper 48,907 tons.

The average price of copper in the English market in 1881 varied but little, the greatest variation appearing in the price of Australian copper. The prices of the several varieties appear as follows for 1881. Those of the two previous years are given for comparison, together with the average price of copper ore:—

Description of copper.	1881.	1880.	1879.
Best selected	£68 0 0	£69 5 0	£64 5 6
Tough cake & ingot	66 10 0	67 15 0	63 1 3
Sheets & sheathing	73 15 0	72 12 0	67 17 9
Australian	67 13 0	72 10 0	65 5 6
Copper ore	4 5 6	4 4 6	3 8 6

The market price of metallic copper (best selected) at the beginning of the year stood at 67. 15s. per ton; this price ruled with slight alteration till the middle of April, when a decline of price set in; towards the end of September an improvement appeared, and continued till the end of the year, when this variety of copper was quoted at 77. 10s. per ton, the lowest price being in the beginning of May. A few of the more important mines of Cornwall and Devonshire sold ore in the following quantities and value in 1881, to which is added the yield of fine copper:—

Mines.	Ore. Tons.	Value. £.	Metal. Cop. Tons.
CORNWALL.			
South Caradon	5,090	£25,797	474
Mellancar	6,745	21,219	409
Gunnislake (Clitters)	2,524	15,851	275
West Tolgus	1,507	7,643	136
Marke Valley	2,321	6,704	128
Levant	1,027	7,177	124
Glasgow Caradon	840	3,049	56
East Pool	936	2,523	50
West Wheal Seton	522	2,690	48
DEVONSHIRE.			
Devon Great Consols	10,334	19,326	421
Wheal Crebor	2,877	9,263	173
South Devon United	2,162	6,428	123
Bedford	656	1,997	16
IRELAND.			
Berehaven	2,529	12,968	221

IMPORTS AND EXPORTS OF COPPER.—The total quantity of copper ore brought into the United Kingdom in 1881 amounted to 102,640 tons, of the value of 801,574., compared with 99,349 tons, of the value of 937,325. in the year 1880. The regulus and precipitate imported gives a total of 44,216 tons, valued at 1,618,137., against 45,001 tons, valued at 1,638,863. in the previous year. The copper unwrought and part wrought amounted to 32,170 tons, of the value of 2,076,009., compared with 36,509 tons, of the value of 2,430,810. in the year 1880. The exports of copper, the produce of the United Kingdom, gives a total in 1881 of 51,263 tons, the declared value being 3,438,555., compared with 48,959 tons, of the value of 3,333,568. in the year 1880; while of foreign and colonial copper the quantity exported amounted to 13,790 tons wrought and part wrought, of the value of 876,367., compared with 14,895 tons in 1881, of the value of 998,880.

The Keeper of Mining Records, in the conclusion of his introduction to the volume now before us, bears ample testimony to the valuable aid received from mine proprietors and mine agents, colliery owners and engineers, ironmasters and managers, railway companies, &c. In conclusion, it only remains to add that Mr. Robert Hunt, as in former years, has had the assistance of his co-adjutors, Mr. Richard Meade and Mr. J. B. Jordan.

TECHNICAL EDUCATION IN GERMANY.—THE ROYAL TECHNICAL HIGH SCHOOL AT AIX-LA-CHAPELLE.—The Programme, or calendar, of this institution for the annual session commencing on Oct. 1 has just been issued. The school embraces departments of architecture, constructive engineering, mechanical engineering, mining and smelting, including chemistry, and general science. Students who are not of German nationality are permitted to matriculate, and can obtain the diploma of the school, but those who seek to submit themselves to the Staatsprüfung, or Government examination, are required to produce testimony of previous studies and in all other ways conform to the rules laid down for German students. The school has a

large staff of competent professors under the contr. Gazycki, and a senate composed of Profs. Lemcke, Intze, von Laspeyres, Wüllner, Damert, Helmer, and Schultz. The course of instruction is a very full one and well arranged; the fees are very moderate, and there are ample bursaries and scholarships (Stipendien und sonstige Stiftungen) to encourage the student, so that it cannot be doubted that the diploma of the school will be a reliable evidence that the possessor is well grounded in his professional studies.

Meetings of Public Companies.

INDIAN PHOENIX GOLD MINING COMPANY.

The ordinary general meeting of shareholders was held at the Cannon-street Hotel, on Tuesday,

Major-Gen. WILLIAM AGNEW in the chair.

Mr. A. W. RIXON (the secretary) read the notice convening the meeting, and the report and accounts were taken as read.

The CHAIRMAN said: Gentleman, I shall preface the remarks I have to make by reading a telegram received last night from India from our acting manager. He says—"Tons, 76; results, 13 1/2; pyrites, this week Giffords, poor; race right; turbine crawling; plenty water." This message you will see is ambiguous, 13 may mean either ounces or pennyweights, or that it was got per ton, or from the 76 tons. We make no doubt it means 13 1/2 oz. to the 76 tons, because we knew from Mr. Grove that the stuff he had ordered to be crushed when he left the Wynaad for England was not likely to produce more than 5 dwts. to the ton, and he will explain why he took such comparatively poor stuff in hand. I am glad this message arrived before our meeting was over, for I shall speak hopefully of our prospects, and I should not have liked that after doing so we had published news which may cause fresh doubt in some minds of the success of our undertaking. I am afraid it must have seemed to you that we must have been very dilatory in holding this meeting; but I can assure you the time that has elapsed since we last called you together has been much longer than we either wished or intended it should be. At first there was a postponement to allow of the return to this country of our secretary, Mr. Rixon, who went to India, as you know, in September last, and was to have been back at the end of the year. But various causes kept him in the Wynaad some five months longer than it was ever meant he should stay there, and, as we found his arrival in England was to be so immediately followed by Mr. Grove's, we thought you would like us to await the return of that gentleman also before we asked you to meet us. Mr. Grove's presence cannot fail to give you pleasure, for he will be happy to afford information on every point connected with your affairs in India about which you may wish to enquire, and will no doubt be able to state facts regarding your property and prospects which will be of the deepest interest not only to yourself but to all those who are in pursuit of the same object we have in view. He will tell you in fact that in his opinion it is certain you own a property of the greatest value, an opinion fully shared in by myself and my fellow directors. When I last had the honour of addressing you I was incautious enough to express the hope that if everything went right we should begin crushing operations in August last. Now everything did not go right, far from it; but even if none of the many disappointments which happened had taken place it would have been impossible my expectations could have been realised, and it has been a cause of constant regret to me that I should have been the means of raising hopes, the nonfulfilment of which must I fear have led to much disappointment. In my case there really was no excuse for my over-anguishness, for, with my knowledge of India, I should have been able accurately to foresee the obstacles that were sure to stand in the way of the speedy construction of works like ours in such a country as the Wynaad. The nature and extent of those obstacles Mr. Grove will explain to you in detail should you wish him to do so, and I think he can satisfy you that at all events there was no want of zeal shown in your service. He will probably tell you he was able and cordially helped in his arduous duties by Mr. Rixon, and, on the part of the board, I wish to express the high appreciation we feel of the services rendered to the company by both these gentlemen. It is a matter of course that mention should be made here of all the vexatious impediments Mr. Grove has had to contend with, but I can assure you that they were not confined to difficulties in the way of transport, owing to bad roads, no roads, weak bridges, and apathetic dishonest contractors, or to a tropical rainfall, though these in themselves were enough to tax even Mr. Grove's energies. You know, gentlemen, from the circulars you have received that we have met with some disappointment in the matter of our turbine, out of which Mr. Grove has only been able to get half the power he expected to obtain from it. There would seem to have been some fault in its construction, at least this is the opinion of the professional advisers we have consulted on the subject. But, fortunately, turbines are not expensive articles of machinery, and a new one is in course of construction, while a second will be ordered as soon as Mr. Grove has visited Belfast, where he is going to inspect the kind of turbine made there. Steam-power will also be supplied for use during the very dry interval—say, of about three months, which precedes the bursting of the monsoon, when, as this year's experience proves, it would not be safe to rely solely on our water supply, good though it may be. (Hear, hear.) I have to thank you, gentlemen, for the forbearance you showed when no news was reaching you, and when it must have almost seemed to you that our business was at a standstill. Some few shareholders, but very few, appeared to think we were concealing matters of importance from them. This, however, was not the case. I told you last year you might confidently rely on our treating you with perfect candour, and we made a rule of publishing all news that came from India that was worth communicating to you. At the present moment, therefore, you are in possession of all the information in regard to the working of our mines we have ourselves, except what we have heard orally from Mr. Grove, and you are accordingly in a position to judge pretty accurately what are the prospects before you. In the first place, you know that we have crushed 32 tons of quartz taken from a reef which is visible at various points of your property for a distance of nearly a mile, and which must, therefore, contain an enormous body of quartz, and you also know the crushing yielded about an ounce of free gold to the ton. Mr. Grove calls it 21 dwts., but as the quantity left on the plates could only be judged approximately, we will assume, to prevent contention, that the yield was something under the ounce. This gold, you are aware, is of exceptionally fine quality, worth within a few pence of 4s. per ounce, and you are further aware, not only that the pyrites found in the stone is extremely plentiful, but that, in fact, at half the weight of the stone, but you know further that this substance is also very valuable. Mr. Grove and two of his Wynaad neighbours found by their assays that it contained 3 ozs. of gold to the ton of pyrites, or 1 1/2 oz. to the ton of quartz, and there is reason to believe that they underestimated its richness, for we learnt a few days ago by telegraph that a quantity left by Mr. Grove for further assay had been found to contain 73 dwts. to the ton. These, then, are facts within your own knowledge, and you can draw your own inferences from them. Of course 32 tons is not a large quantity, still it seems to me large enough—and a year ago it was unquestionable that we should have been able to get enough to more than fairly test the stuff you have to derive your dividends from. Suspicion, I know, has been expressed that picked quartz may have been treated. I can understand a few pounds collected for assay purposes being picked, but I cannot believe that 32 tons were picked; besides, we have Mr. Grove's assurance that he crushed just what came to hand, and I stand here prepared to affirm his word is not open to doubt. Amongst the many things that have been said from time to time in disparagement of this industry of ours it was alleged that since it had been started a singular dearth of sovereigns was noticed in the Madras market, and I am if I am quite certain if the result of the assay of gold before you had been different to what it happily proved to be, suspicion—no doubt in many cases honest suspicion—would have rested in some minds as to its being the genuine product of Wynaad quartz. Fortunately Messrs. Johnson and Matthey have been able to set that question at rest, for had sovereigns been used for the production of what you see, I need hardly tell you the assay would have shown different results. Now that we feel confident we are embarked in a profitable undertaking, we have thought it advisable to double our means of production, and to that end we have telegraphed to the Melbourne firm who supplied us with the excellent battery we have at work to send us another 20 heads of stamps without delay for extension of the present battery, which will be adapted for working either by steam or water-power. We shall thus have 40 heads of stamps at work, and Mr. Grove thinks he can crush from 1 to 4 tons a day per head according to the character of the stone he may have in hand. (Cheers.) Supposing then that he should crush, we will say, only 1 ton per stamp, and should work only five days in the week, and that he obtains free gold and pyrites in the same proportion he has already got, an easy calculation will show you how profitable a business ours will be, indeed, if the yield of gold should only average half the quantity I have spoken of, no one would have a right to complain of the lucrative nature of our undertaking. Mr. Grove, himself, in a letter I had from him on Saturday, says, "Should the lode when further worked upon turn out as good as it is now and get in quantity, it should be a first-rate paying mine. In fact, the dividend will in that case be dependent on the quantity of machinery it is found practicable to work." It will be our duty, therefore, to develop our business in that direction as fast as possible. But there is a limit beyond which we cannot work ourselves, and consequently your directors will have to consider in what other way they can best utilize to your advantage the great mineral wealth they believe belongs to you. We know that everything requisite for the formation of a separate company exists in at least one part of your property, and probably either the sale outright of this and other blocks of reef will, in course of time, be proposed for your consideration, or else the letting on tribute of portions of your estate will be suggested as an alternative measure. I dare say you all know that fears are felt in many quarters respecting the difficulty that will be experienced in India in the treatment of the pyrites. On this point Mr. Grove expresses absolute confidence in his ability to extract the gold in an inexpensive way from the substance in question, and he says there is a site on the Phoenix estate admirably suited, not only for his own work of this kind, but where work might also be profitably carried on for the benefit of those who cared to take advantage of the facilities we could offer to them. (Hear, hear.) Gentlemen, believe me I have felt extreme diffidence in rising in the City of London to address business men on a business subject, and I beg your forbearance if I fall short of the standard applied to men who appear in my position. I shall not take up much more of your time, but no doubt you will require some information about your coffee and cinchona. The former is of little value. It did not pay by the sale of the crop the cost of up-keep, but Mr. Grove thinks highly of the cinchona, and hopes to make it a source of revenue. As yet, however, he has had little leisure to give to agricultural pursuits, and you will understand quite well, I am sure, that we could not press him in the matter from this country, knowing, as we did, how he was beset by cares, anxieties, and worries connected with the more important branch of his business. I must be permitted again to express the estimation Mr. Grove is held in by your board of directors, who entreat the most confident opinion of his professional skill in all its branches, but feel the utmost confidence in him in every other respect. This being so, I

am sure you will be glad to hear he has renewed his engagement with us for two years. His last engagement expired in November, and he might then have left your service. His remaining in it is not the only proof he has given of his confidence in the stability and probably remunerative character of the business he is employed in, but besides having sent for his family from Australia to join him in the Wynaad, he consented quite readily, when we were settling the terms of his new engagement, to his remuneration being made to depend largely on the out-turn of gold he gets, and on the dividend that may be paid to you over 10 per cent, a dividend which I earnestly hope your patience may soon be rewarded with, and unless our calculations should turn out utterly fallacious, it cannot be long before the Indian Phoenix Gold Mining Company is a dividend-paying concern. I have told you that we now mean to push on the development of your business as rapidly as possible, and I may say the means at our disposal for doing so are ample, as we have still 27,533, 19s. 10d. of your capital invested in the debenture stocks of our leading railways, besides the balance at credit of the manager in India, and the bank balance here of 1471l. At present your affairs in India are in the hands of Mr. Grove's son, who has had great experience in New Zealand with similar ore to ours, and, therefore, is a perfectly competent manager; but his father returns to India this day month, and hopes to be in the Wynaad during the first half of October. I wish I could tell you what it will cost per ton to deliver the quartz at the battery, but this can only be known by the light of greater experience than we have yet had of the cost of working. I can only say your directors are satisfied that Mr. Grove is thoroughly imbued with the necessity for the exercise of economy in this direction. I may mention that he will take out with him rock-drills of the best construction, as he finds natives do not make good miners. He had, as you know, to suspend his alluvial washing operations, but this was not owing to any fear as to the result of carrying them on, and when his staff is recruited from Australia, as it is about to be, and he can give the work proper supervision, he will continue it. This brings me, gentlemen, to the end of my remarks, and thanking you for your patience in hearing me, I have only to add, in moving the adoption of the report and accounts, that Mr. Helms and myself retire by rotation and offer ourselves for re-election as directors, and that you will have to elect an auditor for the current year, and that Mr. Whitney offers himself for re-election. In conclusion, the Chairman moved the adoption of the report and accounts.

Mr. Wm. Abbott said he had no doubt the proprietors would be glad of the opportunity of hearing Mr. Grove, who had lately returned from the property in India; and possibly it would shorten the proceedings very considerably if he put a few questions to Mr. Grove in a concise form. He had given Mr. Grove a brief notice of these questions, so that he might be prepared to answer them. One of the questions asked was, with respect to the first gold in the stone; was he to understand that Mr. Grove answered the first question in the affirmative, and the second by stating that 21 dwts. of free gold could be obtained. The third and fourth questions referred to the value of the pyrites, and did he understand that the answer to those questions was that there were 10 cwt., and that the amount of gold contained therein was from 1½ to 1¾ oz. Then the various descriptions you give in your mining report of the Agnew Reef do not exactly say what is its extent, at how many places, and how far apart you found it. Can you give this more definitely? As to the other lodes in the company's property, I see you particularly allude to the Rosedale Section, the Cobra Reef, and the Wudder Hill. Am I to understand that these are all independent of the Agnew Reef, and that are the only ones which you have at present examined? I suppose there are others? You speak so positively about the treatment of pyrites that it is unnecessary for me to make further allusion to that very important subject. It has been suggested that the 32 tons of quartz you crushed was picked. I understand from your report that it was exactly as taken from the lode, and will be obliged if you shall confirm that statement now. I notice that you left a certain amount of gold for dressing the plates. Is it customary, when clearing up, to leave a small amount of the plates, and is it an advantageous course to take? Am I to understand that the partial failure of the turbine were the sole cause of your having crushed so little as 32 tons up to the time that you left India? If you were provided with proper turbine and steam power could you give us any idea of the quantity of quartz you could crush per day; and, supposing that power to be ready to work, have you any idea in your mind of being able to provide sufficient quartz to keep the stamps going? From what you say in your report, the Governor of Madras no doubt takes a deep interest in the Indian gold fields. I suppose, from the industry you have shown in clearing up the mine, that you will be able to give us some information upon this subject now? Then, as regards the railway, what prospect was there of a railway being made to the works, any what steps were being taken in connection with the matter? He noticed that Mr. Grove also reported upon some other properties in the Wynaad, particularly the Consolidated. It was of importance to the shareholders to know whether, after the experience he had gained, Mr. Grove was as sanguine regarding the future of these properties as he was at the time he wrote his report, and whether his experience justified him in expecting a somewhat favourable result as at the time he inspected those properties. Lord Chester said:

Mr. Grove having remarked that he was much more accustomed to go into a mine and do a bit of work than address an assembly of London gentlemen, went on to say that he stood before them a practical man. He went out as a lad to Australia in 1852, and went into "tubbing and cradling," the first system of extracting gold, and quickly worked his way to the extraction of gold from the matrix—namely, from the quartz itself. He was ten years in New Zealand, ten in Victoria, and ten in New South Wales. As regarded this company's mine, he might say that he went to India a thorough scold, having made up his mind that whether the mine promised to be a success, or whether it promised to be a failure, he would faithfully report his opinion to the board. In the first stone lifted he found gold, and in his first report he stated that in every trial he made he found gold. The natives whom he engaged also showed him gold; but in all cases, for his own protection, he crushed the quartz himself, and reported it to be of value. He also stated that the stone would average from 10 to 15 dwts. of gold per ton in the lower section, which had been christened the Grove Tunnel. He then prospected the course of the lode. He arrived at first on a hill about 600 ft. above the level of the creek; he was shown quartz and got his first prospect from there. He took the bearings of the lode, and found the strike went out south-north and south. He cleared the scrub in order to find what was left by the old workers, and in doing that he found a reef exposed, which was now called the Grove Section. He had got visible gold there, and after digging it time after time, he gave it a favourable report. If a lode which dipped were tapped at the bottom it drew the water down. It struck him that the old native workers had been stopped by the flow of water, and he put in a tunnel about 25 or 30 ft. from where the reef was exposed. He had to go through water, but he persevered, and at about 32 or 34 ft. he struck the reef, and broke through the reef where the old natives had left off. The underlie was very great. Since then he had gone 13 or 14 ft. following the dip, and it was better than when he first prospected it. (Cheers.) Therefore the Grove Section, from the main lode, was producing more than he stated in his original report. He had driven on it north and south. Only two natives could work at each face of the reef, or four in all, and in some days they only put in from 2½ to 3 ft. per day, and therefore he asked the directors to give him rock-drills, (hear, hear)—and he was making a report upon the rock-drills. As to the Gifford section he had stated in his report that he did not expect so much from that, but if it did not yield so much it would not cost so much to take it out. (Hear, hear.) He could treat 3 tons from the Gifford just as quickly and perfectly as 1 ton from the Grove Section. On the Gifford he was putting in a tunnel to drive west to lower down lode. He had a tramway right into the forest. He thought that they would have to go at least 200 ft. beyond where they were now to catch the lode from the Battery Tunnel. They would also have to make an air shaft and connect with the Grove Section. He had no doubt that the mines he could develop to keep the stamps going, until he had other preparations made. He had no doubt whatever that he should be able to make 5 to 6 dwts. per ton pay. (Cheers.) In front of the Grove Reef he took out the 32 tons which had been alluded to; it was not picked in any way, but was simply carried away as it was by men and women on their heads, from the mouth of the tunnel, and tipped into the tramway; they took bluestone and all the rubbish, and it was treated with the result which the Chairman had stated. It was quite true, as Mr. Abbott had stated, that the Governor, Mr. Grant Duff, had a great interest in gold mining in the Wynaad. There was no doubt that from the Grove section he had also from the Cobra lode, 21 dwts. per ton could be obtained, and he should not be surprised to see it go beyond that from the lode itself, which was a permanent lode. (Cheers.) As regarded the pyrites, they averaged about 3 ozs. of gold to the ton. As regarded the Agnew reef, the extent was about two miles. As regarded the lodes in the Rosedale section, the Cobra reef, and the Wudder Hill, they were all independent of the Agnew reef. He had not had time to examine the other deposits which he knew existed from the old workings. The lode which passed through the whole portion of the strip on the wall belonged to the Glenrock Company. It was customary when clearing up for crushing for the public to clean up thoroughly everything they could clean up; but in cleaning up for themselves, when the plates were new, they did not clean up so thoroughly, because it was the duty of a manager to have the plates thoroughly impregnated with mercury. There was no doubt that the want of water, and the partial failure of the turbine, was the cause of not crushing more up to the time he left. At first he was under the impression, from what he had heard, that there would be water supply all the year round, but he believed now that there would be four or five months without water, and as they would have to be provided with steam-power. He had no reason to doubt that he would be able to crush 1 ton per stamp per day. They had now 29 stamps, and 10 more ready to erect, and the directors had authorised him to order 20 more stamps, making 50 in all, and he should lose no time in putting these up. He had 14 miles of road all ready, and he hoped by the end of the year to have the 50 head of stamps at work. As regarded the Governor of Madras taking an interest in gold mining in Wynaad, he might mention that his Excellency, the Governor, had conferred with him several times; his Excellency was a thorough believer in the gold fields of India. (Cheers.) As regarded the alluvial deposits, if they got gold on the surface it generally got better as they went down. He would follow up the alluvial washing to the best of his ability, and he was putting down a shaft to find the depth of the alluvial deposit. As a matter of fact, the quantity of alluvial soil on the property was practically unlimited.

Mr. WILLIAM ABBOTT asked Mr. Grove whether his faith in the adjoining properties was as great as at the time he first examined them?—Mr. GROVE said he could not deal with probabilities or generalities, but only with facts; in the Indian Phoenix they had a grand property, and was situated between the Glenrock and the Consolidated, both of which were, in his opinion, good properties. (Hear, hear.)

A SHAREHOLDER asked Mr. Groves whether he had seen the Indian Glasgow Mines?—Mr. GROVE said they were about nine miles off, and he had visited them twice, but he could not offer any opinion upon them. There was plenty of work done, and plenty of money spent. (A laugh.)

The CHAIRMAN, in reply to a SHAREHOLDER, said that nothing definite had yet been done with regard to the disposal of any portion of the property.

A SHAREHOLDER asked Mr. Grove whether he had had any experience with respect to the rock-drills?—Mr. GROVE said his experience of rock-drills had been gained in Victoria, where many of the mines were abandoned, as the miners could only get 2 or 3 dwts. per ton, but since they started rock-drills worked by steam they could make the mines pay. (Hear, hear.)

Mr. GROVE, in reply to a further question, said there was abundance of fuel on the property. To show his faith in the mine, he might mention that not only did he hold a considerable stake in the company, but he had also brought his family over from Australia at his own expense, and who would do that unless

he had faith? (Cheers.) As regards the question of labour, he believed English labour would be found as cheap as native labour, and he should probably only use natives as navvies.

The resolution for the adoption of the report and accounts was then put and carried.

On the motion of Mr. CRABE, seconded by Mr. GODDARD, the retiring directors—Major-General Wm. Agnew and Mr. L. V. Helms—were re-elected.

On the motion of Mr. STAPLES, seconded by Mr. GODDARD, the auditor, Mr. Whitney, was re-appointed, and resolution was also passed awarding him a remuneration of 20 guineas for his past services, and 50 guineas for the current year.

Mr. Wm. ABBOTT: I beg to propose a hearty vote of thanks and welcome to Mr. Grove for the lucid explanation he has given us of the position of the company, and the expectations in which he has indulged as to its future. (Hear, hear.) I was satisfied from hearing Mr. Grove that, although he said he was not an orator, there was a sincerity about his utterances which was better than any polished show he could offer. (Hear, hear.) He was exceedingly pleased to see Mr. Grove in such hearty and robust vigour, and hoped he would go back to the Wynaad, and actually carry out the expectations in which he had indulged to the fullest extent. (Cheers.)

Mr. HODDING said he had much pleasure in seconding that. All who had listened to the straightforward utterances of Mr. Grove must share the directors' faith in him. (Cheers.)—The resolution was carried.

Mr. GROVE acknowledged the compliment.

A cordial vote of thanks to the Chairman and directors closed the proceedings.

ANTIOQUIA (FRONTINO) COMPANY.

An extraordinary meeting of shareholders was held at the offices of the company, Gresham House, Old Broad-street, on Wednesday, Mr. THOMAS EYRE FOAKES in the chair.

The CHAIRMAN said: Gentlemen, as the notice convening the meeting informs you, this meeting has been called for the purpose of considering, and if approved passing, the following resolutions:—

"That the capital of the company be increased by the issue of 5000 shares of the company of 1l. each. And "That in the event of the resolution authorising the issue of the additional 5000 shares being confirmed at a subsequent general meeting of the company, and of the shares in question not being subscribed for by the existing shareholders, such shares be appropriated by way of bonus to those shareholders who may subscribe for the further debentures now proposed to be issued by the company, in the proportion of one fully paid up share for every 1l. of such debentures."

In order to induce the shareholders to subscribe for the debentures which we require we have proposed to submit for your consideration the propriety of issuing 5000 more shares of the company of 1l. each. These, under the Articles of Association, we are bound to offer rateably to the shareholders these 5000 shares at par before we can deal with them in any other way; but, assuming that the shares are not taken up by the shareholders, any shares not so taken up will be available under our articles to be dealt with in such a way as the directors may see fit for the benefit of the company, and what we propose to do with them is this: to issue debentures, and to give to those gentlemen who may subscribe for the debentures one fully paid share in respect of every 1l. they may subscribe to the debentures, so that a shareholder taking a 50l. debenture will have 50 fully paid shares allotted to him as bonus besides the 10 per cent. interest which we shall give on the money invested in the debentures. I need not say more to you to-day on the subject than that I leave a balance available in some shape or other for a dividend; it is really a question as to how many stamps we have as to how much profit we make—I mean speaking in reason. Therefore, seeing how much money has been spent by the company in trying to attain the completion of the adit, which is now so nearly through, it would be a great pity not to raise this money at once and so make the mine a success. No doubt there has been a great delay in reference to the carrying out of the works, but that has arisen in great part from the fact that the Escobar lode on the other side of the hill met with a fault which upset the whole of our arrangements. If we had had good luck with the Escobar lode we should not have had to leave the mine, but you know that in mining these things will happen. It was a fault made by Nature and not by the company or its officers. In regard to the other side of the hill, where we are now working the Carmen lode is not a matter of speculation, it is a matter of certainty. There is a very large amount of backs, and it is only the question of unwatering the mine, which the adit will do, to make these backs available for stamping purposes. The gold is more valuable to sell than the gold of the Frontino and Bolivia Company, and I think we may reckon to have from 1 oz. to 1½ oz. to the ton as the produce of the ore. I may add that the board will not issue debentures for less than 25 cents, but probably we shall let people pay up the amount by instalments if they wish; and a circular will be issued explaining what we propose in that respect. The Chairman then moved the resolutions given above.—Mr. WILLIAM BAXTER seconded the motion, which was carried unanimously.

Mr. FOAKES: In regard to the debentures. How much is already issued? The CHAIRMAN: 6500l. at 10 per cent. We have got promises to the extent of 1000l. towards these new issue of debentures, and some of the applicants have paid up already. In reply to further questions, the Chairman said they had to say about 2000l., but that would see the adit through. The interest on the debentures was cumulative.

Mr. ROBERT WHITE (the superintendent), in reply to a question, said he had not the slightest doubt as to the profitable character of the mine. The amount of gold they would get out of the mine would depend on the push they made to provide the means for reducing the mineral when raised; but when the adit was through, if the shareholders did not provide the means to put up more stamps, he believed the company's farming property would enable them to obtain the money required on the spot. A common thing out there was to take cattle in partnership, one party providing the farm and the other the cattle. The company's farm would carry 400 head of cattle, and as cattle out there, if bought at a proper age, doubled their value in about two years, that would, in any case, give them the means of carrying out any little extensions which might be found necessary.

Mr. FOAKES: Is there any doubt in your mind about the mineral being there?—Mr. WHITE: Not the slightest. We have got the richest part of the mine ahead, but it is all proved.

The CHAIRMAN explained that the adit now in course of driving was the deepest part of the mine, and the backs could be very easily stopped away when the completion of the adit drained the water, which it would now do very shortly.

After a short conversation the meeting closed with a vote of thanks to the Chairman and directors.

WESTERN ANDES MINING COMPANY.

The ordinary general meeting of the shareholders was held at the offices of the company, Guildhall Chambers, Basinghall-street, on Thursday.—Mr. W. BRANDON in the chair.

Mr. A. L. HUTCHINSON (the secretary) read the notice convening the meeting and the minutes of the preceding meeting, which were confirmed. The report and accounts were taken as read.

The CHAIRMAN: This is our general meeting, at which we lay before the shareholders the accounts, showing the working of the mine up to April 30 preceding. Those accounts show a profit of 4233l., being something like 500l. less than in the preceding year; but that is not to be attributed in any way to anything in the shape of the mine having become of less value, but it is, I am sorry to say, due to the want of management of our late manager. I am happy to say that we have now a new manager, and the accounts that he has sent over, not only in the cash, but in the reports, are such as to give us very great hopes for the future. The auditors have made their report, and in that report they allude to two sums—the first being an item of 700l. standing for an increase in the purchase of land. That has been a purchase of land adjoining our San Antonio Mine, and it has been thought very advisable to purchase that ground, as part of our vein runs so close to it that we may hope it will run through it, and that the purchase will be a very good one for us. Then there is the question of the new works remaining the same as they were in the preceding year. It has been our custom from time to time to write off the new works; but we have not done it this year, as we have had so many extra works which are perfectly new works, and those new works have been carried into the ordinary monthly expenditure, so it must not be supposed that we have left the item of new works as it was because we had done nothing in the way of new works, because the new works made during the year have been paid for out of the ordinary expenses of the year. In the capital there is a little alteration, and you will find that the item, "less calls in arrears," has disappeared altogether. Arrangements have been made with those gentlemen who held shares on which calls were due, and shares have been given to them for the amounts they had paid, so that we should at once see what our capital is and strike out that item of arrears. Mr. Percy Brandon is here, and I think he is desirous, for the information of the shareholders, to say a few words more minutely than lies with me to speak, and therefore, as far as regards the report, I will, if you please, move that it be received and adopted, that the accounts also be received and approved, and that a dividend of 5½ per cent. be declared, subject to the 2½ per cent. which we have paid up to the present time.—Mr. A. J. SANKLEY seconded the motion.

Mr. PERCY BRANDON said: When we met a year since it was stated that, owing to circumstances that had occurred, it had been found necessary to supersede our then superintendent, and to send out some one in his stead, and that Mr. Jackson, who had formerly been at Marmato for many years, had gone out. It was anticipated that the change would have a beneficial effect on the results obtained from the mine, and I think he is desirous, for the information of the shareholders, to say a few words more minutely than lies with me to speak, and therefore, as far as regards the report, I will, if you please, move that it be received and adopted, that the accounts also be received and approved, and that a dividend of 5½ per cent. be declared, subject to the 2½ per cent. which we have paid up to the present time.—Mr. A. J. SANKLEY seconded the motion.

When I tell you that the result of those four months was a loss in the Marmato part of the property of 5305 hard dollars, with a profit only of 3633 hard dollars on the Aguas Claras part, it will be well understood that such a result must have had a very detrimental effect on the profits of the year. On Mr. Jackson's arrival at the establishment he made a thorough examination of the property, particularly of the Marmato portion, and having present to his mind the excellent state he left this in seven years previously, the almost abandoned state in which he found some of the principal works gave him a bad impression, and in his report he stated that he feared it would require much time and money to put things in proper order again. The remaining part of the property he found in better condition, but he was not satisfied with it. He made some alterations in working it that he thought would be beneficial, and has somewhat augmented the profit, which, the same as last year, not only covers the loss made on the Marmato part, but gives the wherewith to pay the dividends. The results from the silver lodes, it is hoped, will be greatly improved before long. Of late a large amount of mineral extracted from the mines is of the quality unfit for amalgamation; consequently a thorough examination is being made into the feasibility of treating it by smelting; but as the cost of putting up smelting works is very great it is absolutely necessary to ascertain not only that the mineral can be treated by that process at a profit, but also that there is a sufficient quantity of it to supply the ovens for some years to come, and that a sufficient quantity of lead can be obtained near at hand. Mr. Jackson having found the Marmato part of the property that which most required his attention, he set to work upon it immediately; and, having a thorough knowledge of the whole surroundings, he searched for new spots from which he might hope to get fair if not good results, and by means of which he might obtain the time and funds to enable him to put the levels leading to the old lodes in good order by-and-by. As he feels sure that those, if properly worked, will again give good results. The result of his work has been that, whereas during the whole 32 months under the previous management the loss averaged 1408 hard dollars per month, that during the time of his presence there up to the end of our financial year (April 30) has been reduced to an average of 387 hard dollars, and this notwithstanding that much money has been spent in repairing old works and opening up new lodes, part of which are still unproductive, so that it may really be said that there has been no loss. This is a much more favourable state of things, but I think we may soon expect something better, as by the last accounts received—those of the month of May—the work at Marmato yielded a profit of 455 hard dollars, notwithstanding that in addition to the cost of the month the sum of 120 hard dollars was charged on account of new works. You must not from this expect a continuous profit from this part of the property from now forward, nevertheless the report upon the lodes opened out by Mr. Jackson, different from those worked during the past few years, is most favourable, and giving hopes that the time of continuous profits therefrom is near at hand. The general report on the mines is favourable. My desire by these remarks is to show that the comparatively small dividend does not arise in any way from the exhaustion of the property, and that it is a most valuable one, and only requires good management on the spot to make it pay well, and I am sure that, from many years personal knowledge of Mr. Jackson, I may say that a person who has one looking after your interests who is a thoroughly practical man, whose only desire is to put the property again in the same flourishing condition that it was in when he left in 1875. I have more than once referred to the loss to us by the fall in the price of silver. Had it remained the same as it was when the company was formed, in 1873, I should now be able to say that we had been made from profit in working the mines more than sufficient to pay the dividends equal in amount to the whole capital of the company. As it is, I can only say that during the nine years the profits have amounted to 60,318l.

In reply to a question Mr. BRANDON said Mr. Jackson, the superintendent, was not a shareholder. He had, however, had 30 years experience of the country in which the property was situated. In reply to further questions Mr. Brandon said the difference in the price of silver during the past year meant a loss to them of nearly 4000l. The accounts were brought up till the end of April, and they were not received here until the end of June, so that the meeting could not have been much earlier than it was.

The motion was then carried unanimously. The retiring directors and auditors were re-elected.

A vote of thanks having been passed to the Chairman and directors, the meeting closed.

LAKE SUPERIOR NATIVE COPPER COMPANY.

The second ordinary general meeting of shareholders was held at the New Exchange Buildings, George-yard, on Thursday, Mr. W. FRASER RAE, the Chairman, presiding.

The notice calling the meeting was read by Mr. DANIEL NORRIS, the secretary.

The report and accounts were taken as read.

The CHAIRMAN said he would make a few remarks in the way of addition to, and elucidation of, the report itself. It might be said, and said with perfect truth, that the report was somewhat meagre; but it was somewhat meagre intentionally, because he hoped to give the shareholders some information gained by himself when he paid a visit to the property at Lake Superior not long ago. Before proceeding to that matter, however, he might refer to a point which had been a subject of remark with some shareholders, that the directors were doing a good deal in the way of erecting works for workpeople, and matters of that sort, and in doing so, in the way of mining. They must not forget that this property was acquired upon terms unprecedented in the history of mining enterprise, and it could not have been acquired on such terms if they had had all the appliances and necessities of life on the spot, or within their reach. What they did acquire was a rich mineral tract of land, upon which the most conspicuous things were trees; but such things as houses, or any accommodation for civilised or uncivilised people, were conspicuous by their absence. Therefore, it was necessary to erect accommodation for the workmen who were to be employed. The directors were informed, by recent advices, that a large number of houses had been erected, or were in process of being erected, and he hoped that in the course of the present autumn there would be a staff of workmen on the spot—perhaps 150, if not 200—and when those men were there the process of developing the mine would go on at a very speedy rate indeed. (Hear, hear.) The directors had intentionally postponed doing much mining, inasmuch as they desired to make the mining special effective by the employment of rock-drills, by which the work of developing could be done at a much quicker rate than by hand labour, whilst the saving in cost was also very large. When the mine was in a full operating state they would be able to develop the property in the way they hoped to do, and to make returns to the shareholders. He should not like the shareholders to leave the meeting with the idea that they were going to receive immediate dividends, because there was a great deal of work yet to be done, but he hoped that by next spring they would be in receipt of returns of an amount which would satisfy all reasonable expectations. (Hear, hear.) With respect to the property, he went there having been to Lake Superior before, expecting to see some shareholders, and that the directors were doing a good deal of that part of the country, and he was much struck with the property which the company had acquired, and struck with it in this way—that although the work done was small, the results were large. He spent a whole afternoon in going over the accumulation of ore on the dump, where there were about 500 or 600 tons, which was estimated to produce a very considerable amount of copper, for which credit had not been taken in the report. He could not find a piece of rock which did not contain visible copper. Those who were experts said they had never seen any quantity bearing so much visible copper as they had lying there. Those mines which were so successful on the south side of the lake, the minute particles of ore disseminated through them. This company had apparently got a large quantity of this material, which was rich as far as the shaft had, up to the present time, been sunk and the level driven. He had also an ingot of copper, which was the result of 600 cwt., or 750 cwt. of the poorer rock which had been sent over, which did not show copper visible to the eye; this had been assayed, and the percentage obtained was such that, if it could be relied upon throughout the whole property, would be large enough to pay them as good as a dividend as they could desire—certainly enough to satisfy ordinary persons. The copper was of a very high character, and in doing so, in the way of his worthy colleague, Mr. Pontifex, he might mention that Mr. Chambers, of the Garratt Copper Mills, was good enough to examine it, and he said that, although the treatment was not so good as it treated by a practical copper smelter, yet the result was that it was very fine copper, and of the same rich colour as other samples which he had seen from Lake Superior, from which the most difficult kind of unmineral work had been made. Therefore, the rock was of the high character they desired, and the copper they got out of it was all good copper. They had not completed all the arrangements which would have to be made with respect to the title; everything was in perfect order, but there were some formalities to be complied with with respect to the special charter, but there was no doubt whatever that that charter would be granted. He had been in communication with the Prime Minister and Attorney-General of Ontario, both of whom regarded the enterprise as of vast importance to the Province itself. (Hear, hear.) He also enquired as to the water communication and the means of transporting the stock to the mine and the ores from the mine. These were matters which would be very simple indeed, and would be considerably simplified in a very short time. The communication by water was open in the summer months, whilst the Pacific Railway would be within 12 miles of the property before long. But what was still more important, the company would not have to be dependent upon communication at all, because it was proposed to smelt the ores on the spot, and sell it in the Dominion of Canada, where he was glad to say, there was a sufficient demand for all the copper which the company could produce. (Hear, hear.) In this way the company would have a special advantage, for they would save the cost of carriage from Canada to this country, and get on the spot even a larger price, owing to the protective duties which prevailed there. In conclusion, he should like to repeat a sentence or two which he used at the statutory meeting held some time ago. He said then that there was a Spanish proverb to the effect that a man who had a gold mine was certain to die a pauper, a man who had a silver mine might possibly make both ends meet, but a man who had a copper mine would not only die rich but provide for all his relations. (Cheers and laughter.) He was glad to be able to congratulate the shareholders upon the fact that they were the possessors of a very fine copper mine. (Cheers.) In conclusion, the Chairman moved the adoption of the report and accounts.

Mr. E. A. PONTIFEX seconded the motion, and said he would take the opportunity of answering a question which he had heard a shareholder ask, which was as to whether this mine would be as prosperous as the Cape Copper had been. He had been connected with the Cape Copper since its commencement, and had taken the greatest possible pride and interest in it, as one of the most successful undertakings of the kind of the day; and he could only say that when they began to work that mine there were nothing like the indications which they had in this mine. Whether those indications would continue below the surface he could not say; but the indications of this mine, as far as he could judge from the reports, were exceedingly promising. (Cheers.)

Mr. STEVENS said he might draw the attention of the gentlemen present to

[illegible]

are carrying about 5 ft. wide of the vein; the ores are about 5 to 6 per cent. Cu. As this is the most easterly point developed from this shaft it may be considered as a very favourable indication of what may be expected from the extension of other levels in the same direction. At No. 3 shaft the vein in the 10 east and west is becoming more compact, and from present appearance it seems as though we are opening up a new part of the mine that will when more fully developed considerably augment the present output of ores. At No. 1 shaft we have been cutting into the footwall, but have found nothing of importance. We shall now resume the drifting on the branches of ores, and as these are increasing in size expect they will unite and form a solid leader of ores, such having been our experience hitherto. At St. Francis Mine the leader of ores in the north and south drifts is a little larger, in the north drift being about 8 in. wide; an assay of this leader yielded 17 per cent. Cu. The smelting works are running well, and turning out fair quantities of regulus.

CHILE GOLD.—The directors have received the following telegram from their manager:—Return for June 1882 ozs.; 23 days, 30 stamps. This gives a yield of over 2 ozs. free gold per ton of quartz crushed. The main counter-shafting having broken a delay of over three days was occasioned, otherwise the anticipated production of 2000 ozs. for the month would have been more than realized.

CORPORATION OF SOUTH AUSTRALIAN COPPER.—Report for fortnight ending June 28: Billman Mine: Capt. Bryant reports on June 24: The 35, south of Masey's shaft, is communicated with the winze sunk below the 15, and extended about 4 fms. beyond in a lode, varying in value from 1 to 2 tons of 20 per cent. copper ore per fathom; present end producing saving work for copper ores. The cross-cut east at the 45 south has passed through a good leader of sulphure ore, worth about 4 tons of 20 per cent. ore per fathom; the present end of cross-cut appears to be nearing the wall of the lode. Flat of winze sinking below the 35 north is not as yet holed to the surface in the back of the 50, but we are expecting to do so daily. Some 6 fms. behind the present end of the 35, north of Masey's shaft, we are cross-cut east and west on a branch of ore producing good dressing work; this cross-cut will prove whether the level has been driven on the main part of the lode. The south shaft is being sunk with all possible speed. Prospecting pit east of main lode has been sunk 20 ft., and has shown strong stains of copper; in sinking the last 6 ft. we passed through a hard bar of unconformable rock, which has again given place to a strong iron gossan, with improved indications. Leigh's Creek and Wirtaweenah Mines.—Capt. Trengrove reports on June 24: During the week Masey and Capt. Pauli and Bryant have visited the Leigh's Creek, Wirtaweenah, and Beltana Mines, and expressed themselves thoroughly satisfied with the amount of labour done and the general workings of the mines, and highly recommend the pressing on with important work at Leigh's Creek, and Wirtaweenah in particular, by sinking at once four shafts in various parts of the mines.—Mount Rose Mine.—Capt. Gribble reports: The men have cleared up the eastern shaft, and have discovered a level driven towards the engine-shaft. At the end I have discovered the lode mentioned in my last, east of the engine-shaft, 60 ft. level. I have now sunk the shaft by six men, but will let it on contract to nine men without delay to sink 12 fathoms. The east end below the 60 ft. is driven by two men, and is producing rich black ore at the bottom of the level, but at present is a little patchy.

DINGLEY DELL ESTATES AND GOLD.—July 7: We are proceeding with the alluvial washing and have cleaned-up a little of the heavy sand, and washed it out by hand; for the kind of debris we have had to deal with on commencing operations it has given as good a show of gold as could be expected; as a general rule the gold appears to be very fine, with a few exceptions when a coarse bit or two turns up as the work progresses, and we advance into the deeper earth-matter ahead of us. I think the chances of success will be better, and I trust the results will be in accordance with our expectations. At No. 3 extension we have been clearing and washing off the soil with capital success, and exposed the reef for about 80 ft. deep, and 30 ft. wide after removing a piece more to the north it will give us good facilities for blasting it down and proving its character. I have no hesitation in saying that this is the most expeditious way of exploring the reefs, as we obtain depth of its underlie is much increased, and is at this time running very well. At No. 1, we have cleared off a large piece of the heavy soil, and will very soon be in position to uncover the reef in one place about 30 ft. below the surface the indications are such as to believe the reef is not far distant. At this point quartz has made its appearance and I think in another week we shall be able to communicate of its being fully exposed to view. We are unable to do anything at Fletcher's application as yet on account of the heavy rains, neither do I expect to for a few weeks, consequently we have put on our principal force at Nos. 1 and 3, so as to open it out as quick as possible. We are still crushing, and when the pile is finished which is now got ready for the pulveriser, we will clean up, and let you know the results. James, of Trevelyan, has taken out 5 tons of No. 2, and part of which is carted away for their reduction works, he is now taking about the same quantity from No. 4. Samples will be taken from the other reefs in rotation. We are assisting him to cart the quartz with the bandys from the estate. Mr. James also sent four yesterday from Trevelyan, but the roads are almost impassable, and the quantity taken in each cart very small.

DON PEDRO.—Copy of telegram, Rio, Aug. 9: Produce for the month (July), 6500 ozs.

ELBERHARD. F. Drake: Statement of progress for two weeks ending July 15: Drift No. 1 (south) from 6000 ft. west, total distance, July 1, 284 ft.; run for two weeks ending July 15, 35 ft.; total distance, July 15, 319 ft.; run for month of July, 35 ft.; Drift No. 2 (north) from 6000 ft. west, total distance, July 1, 99 ft.; run for two weeks ending July 15, 29 ft.; total distance, July 15, 128 ft.; run for month of July, 29 ft.; Upraise from drift 2, total distance, July 1, 88 ft.; run for two weeks ending July 15, 8 ft.; total distance, July 15, 96 ft.; run for month of July, 8 ft.; Drift No. 1 (south), from upraise, total distance, July 1, 25 ft.; run for two weeks ending July 15, 13 ft.; total distance, July 15, 38 ft.; run for month of July, 13 ft.; Drift No. 3 (north), from upraise, total distance, July 1, 0 ft.; run for two weeks ending July 15, 12 ft.; total distance, July 15, 12 ft.; run for month of July, 12 ft. With this month hot weather has set in, which has greatly increased the down current of air through our workings, and given us good ventilation. While this continues we will have no need to run the blower. In drift No. 1, south from the 6000 ft. west, the wall or break along which we have followed is getting irregular, and the eastern line is making into the ledge matter. A portion of the rock through which we have passed since last report is a quartzite, and is a hard, and is a little more than 100 ft. distance made in drift No. 2, north from the 6000 ft. west, is not all in a line driving ahead. About 20 ft. in from the main west we find the wall disturbed and thrown from its general course. It is causing us considerable work other than driving ahead to ascertain the direction and extent of the disturbance.—Drift No. 2 north from upraise: As another prospect driving for ore, and to ascertain whether the wall does continue north, I have at a point about 100 ft. up the rise (at the top of its present height) commenced a drift north which is now in 12 ft., following on the wall which continues strong and regular, and carrying up a quartzite, and is a little more than 100 ft. distance made in drift No. 1, south from the upraise, and at the same time continues the upraise.

EUREKA NEVADA SILVER.—Report on mines for week ended July 17:—Bald Eagle: The drift from the bottom of the winze at the end of the south drift from the 150 ft. east cross-cut, has been advanced 25 ft. during the week in a favourable ground for ore. A drift has been commenced from the slope at a point 15 ft. below the 150 level on a small seam of good ore, which is improving as the drift is being advanced.

FLAGSTAFF DISTRICT SILVER.—M. Gunderson, July 16: The cross-cut running from the drift above No. 4 level is in 99 ft., gain 5 ft., and still continues looking well. The cross-cut running from the top of the rise, on No. 1 level, was run 6 ft.; no change, and abandoned for the present on account of bad air. In the rise just above the cross-cut, on No. 1 level, where we were following a seam of ore which ran from the main body of ore, it does not look so well, white lime coming in. The ore body still looks fair. We broke about 10 tons of good ore. The cross-cut on the tunnel level is in 40 ft., gain 8 ft.; struck the hanging-wall and abandoned for the present. The rise above the tunnel level does not look so well as in last report; the ore is more mixed with iron. Number of miners eight, labourers four, foreman, and cook—total, 14. We are trying to fix up the machinery so as to run and keep the mine free from water.

—July 23: The cross-cut running above No. 4 level is in 106 ft., gain of 7 ft.; no change. The rise in the cross-cut on No. 1 level was run 18 ft. the past week; the ore has pinched out. The cross-cut on No. 1 level was run 20 ft.; looks well, and some good ore. We broke about 10 tons of good ore. The ore continues about the same, poorer in quality if anything. I commenced work in a cross-cut running from the rise on the tunnel level, where some work was done a year ago, and drove 21 ft.; it looks well. In the cross-cut above the tunnel level the ore has pinched, leaving small bunches of iron, which we shall follow for the present. We have got the machinery so that it will run again. Have hoisted about 40 tons of iron which was broke last week, also hoisted about 20 tons of good ore, and have got the levels free from water. Number of men employed 19.

FORTUNA.—Aug. 2: Canada Inco: The 70, driving west of San Pedro's shaft, has slightly fallen off in value, but still yields good lumps of ore; worth $\frac{1}{2}$ ton per fathom. The 80, driving west of San Pedro's shaft, is regular and compact, producing $\frac{1}{2}$ ton per fathom. In the 90, driving west of San Pedro's shaft, there is a wide strong lode spotted with ore, not quite enough to attach a value to. The 90, driving east of San Pedro's shaft, looks more promising than for some time past, and will doubtless shortly improve. The lode in the 120, driving east of O'Shea's engine-shaft, is compact, being composed of carbonate of lime, quartz, and lead ore; valued at $\frac{1}{2}$ ton per fathom. In the 130, driving east of Lowndes's shaft, a fairly productive lode is being laid open; worth 1 ton per fathom. The lode in the 140, driving west of the 70, is small, and the ground hard for driving. In Arab's winze sinking below the 110 there is a wide strong lode, producing very good stones of lead ore; worth $\frac{1}{2}$ ton per fathom.—Los Salidos: The 175, driving west of Taylor's engine-shaft, continues poor, and the ground hard for driving. The lode in the same level, driving east of Taylor's engine-shaft, is regular and compact, and produces good lumps of ore, valued at $\frac{1}{2}$ ton per fathom. In the 145, driving east of Taylor's engine-shaft, the ground is still disordered slightly; we hope soon to meet with settled ground, and an improved lode. The 130, driving in the same direction, continues poor, and the ground hard for driving. The lode in the 120, driving east of San Pablo's shaft, there is a compact, regular, and well defined lode, producing 2 tons of ore per fathom. The lode in Jumbo's winze sinking below the 120 has decreased in value to 1 ton per fathom. Very good progress is being made in sinking Barnum's winze below the 130; the lode produces 1 ton per fathom. Bey's winze is being sunk below the 35 at a cheap rate in a promising and productive lode; worth $\frac{1}{2}$ ton per fathom.—San Anton: In the 55, driving east of Henty's engine-shaft, the lode is large and wide, yielding considerable stones of ore; worth $\frac{1}{2}$ ton per fathom. The lode in the same level, driving west of Henty's engine-shaft, continues open and very wet, but does not contain ore enough to value. In the 45, driving west of Henty's engine-shaft, the lode and ground are disordered by cross-joints, and the lode is consequently valueless. The lode in the 30, driving west of Henty's engine-shaft, has decreased in size, being composed of barites and spots of lead ore. Perez winze, sinking below the 45, is situated in advance of the 55, west of Henty's engine-shaft; the lode produces $\frac{1}{2}$ ton per fathom.—San Francisco

Mine: In the 25, driving east of Clarin shaft, the lode is composed of gossan, decomposed granite, and occasional stones of ore. The lode in the 40, driving east of San Francisco engine-shaft, has become smaller, and the ground harder for driving. In the 50, driving in the same direction, there is a wide open lode, from which water issues freely. The lode in the 50, driving west of San Francisco engine-shaft, in the past week has yielded good lumps of ore; it is not so good at present, its value being $\frac{1}{2}$ ton per fathom. In the 40, driving west of San Francisco engine-shaft, the lode is small, and ground wet; it is being speedily driven through. The north shaft, sinking below the 15, has reached the required depth, and the men are put to open a 25 ft. level.

HOOPER HILLS.—Report for week ending July 22: In the Gallimore drifts at the 130, both north-east and south-west, the vein is small and split up. In the cross-cut from the 70 we have cut through the bunch of ore, and now purpose driving along it. The tunnel is being driven along the hanging-wall of the dyke, and is advancing rapidly. The cross-cut to the old workings is making good headway.

July 25: I have much pleasure in informing you that we have just struck good ore in the cross-cut from the tunnel to the old workings. We have not as yet cut beyond 1 ft. into it, and there has not been time to make any assays, but it pans very well indeed. The ore is a somewhat different character to that got in the veins in the hard dyke, being softer, the gold coarser, and where we have struck it free from sulphures.

ISABELLE (GOLD AND SILVER).—Metallurgical Department: Report for week ending July 17: On the 10th melted bar No. 29, 787 $\frac{1}{2}$ ozs., fine in silver and gold; assay value, \$671.61; net returns from mint, \$554.73 (1111). There was nothing allowed for the gold in this bar. I have written for an explanation. On the 14th melted bar No. 30, 703 ozs., fine in silver and gold; assay value, \$648.15 (1161); mint returns not yet received. Assay of battery samples from July 9 to 15: Gold, \$85.21; total \$51.25 (104.15). Assay of furnace samples from July 9 to 15: Gold, \$7; silver, \$54.10; total, \$71.10 (144.48). Copper, 7.8-10 per cent. Chlorination, 90%. Extraction of silver, 88 per cent. Copper same as last.

—July 17: The interim manager writes: We are now making a profit over all expenses, although treating less ore. I concentrated (by hand washing) a sample of clay from the west drift, the original sample assaying from 88 to 89 per ton, with some gold and copper. The concentrations assay \$94.27 per ton in silver and gold; total value, \$134.27, or over 271. sterling, per ton. There appears to be an immense quantity of this material, as the drift has penetrated it 80 ft., all in the same matter, and another drift north of it also running west has been driven 40 ft. in the same formation and value. This ore can be crushed and concentrated on a large scale by a water-power on Carson river, using the Frue concentrating machines for less than 75 cents (3s) per ton.

LINARES.—Aug. 2: The lode in the 115, driving east of Warner's engine-shaft, is strong and regular, with good stones of ore. In the 130, driving in the same direction, the lode shows signs of improvement, its value being 1 ton per fathom. In the 140, driving west of Warner's engine-shaft, is much easier for opening, but does not contain any ore. The 115, driving west of Warner's engine-shaft, there is still a very fine lode, worth 3 tons per fathom, but scarcely so productive as it was. There is no improvement in the 135, driving west of Peill's engine-shaft. In the same level, driving east of Peill's engine-shaft, the lode continues unproductive. The lode in the 120, driving east of Peill's engine-shaft, is more productive than it was, being valued at 1 ton per fathom. In the 105, driving east of Peill's engine-shaft, there is a very promising lode, worth 2 tons per fathom. No. 243 winze, sinking below the 115, is down to the 130, and will be ready in two days. No. 244 winze, sinking below the 105, is holed to the 120; the lode produces 1 ton per fathom. No. 245 winze, sinking below the 105, there is a strong, productive, and well-defined lode, worth 2 tons per fathom. The usual quantity of ore was weighed into the stores during the past month, and the slopes are yielding moderately at present. The ordinary works at surface are kept on very steadily, and the machinery is in good condition. We estimate the raisings for August at 250 tons.—Quintientos Mine: In the 100, driving east of Taylor's engine-shaft, there is a strong and regular lode, with good stones of ore. The 90, driving in the same direction, is passing through a hard bar of gossan, and is an average of 5 ft. in width. In the 70, driving east of Taylor's engine-shaft, sinking below the 90, the lode is not yet reached. The various works at the mine are going on very regularly, and the engines are in good condition and work economically. All the stuff, with the exception of at one shaft is now drawn by steam power, effecting a great saving as compared with mule work. A good quantity of ore was delivered to the stores in the past month.

MISSOURI.—Advices received from St. Clair this week state that at the Victoria lode the 25 ft. south level has been driven 42 ft.; the lode is 2 ft. wide, the end continuing in clay. In shaft No. 2, on this level, the vein has grown much stronger, and is an average of 5 ft. in width across the bottom of the vein. Stopping is being carried on between the two shafts.

NEW EMMA SILVER.—J. Cullins, July 17: The shaft-work is nearly completed and will commence sinking in a few days. Raise from Illinois tunnel is up 10 ft. showing some iron with a little ore interspersed and is looking very favourably.

NORWAY COPPER.—Alfred F. Secombe, July 5: At the engine-shaft the shaftmen have completed the top and trip ladders, and piece of ground for the tramroad; the arch is taken away and the skip-road will be completed in a day or two, when they will commence sinking. The lode in the winze sinking in the bottom of the 116 ft. level, west of engine-shaft, is worth 7 $\frac{1}{2}$ lbs. per fathom. The lode in the rise in the back of this level is worth 8 $\frac{1}{2}$ lbs. per fathom. The lode in the slope west of this rise is worth 6 $\frac{1}{2}$ lbs. per fathom. In the rise and slope in back of the 72 ft. level, west of engine-shaft, is worth 6 $\frac{1}{2}$ lbs. per fathom.—Gronskaret: The lode being from 16 to 18 ft. wide, we are only carrying about 6 ft. of the south part of it, which is producing some fine stones of copper ore, but not enough to value. As soon as this shaft is sunk 12 fathoms I propose driving a cross-cut through the lode to ascertain its size and value.—Surface: I have been engaged in the cross-course, and have been driving it as fast as possible. No doubt you think that we are a long time getting this parcel of ore ready, but I can assure you that it is with very great difficulty that we have done as well as we have; the latter end of next week, however, we shall ship about 60 tons of good quality ore. When we first commenced dressing the large crown wheel broke, we were then idle a little over a week, since then we had to change the rolls and shift the shafting on account of our having a smaller crown wheel. The perforated plates in the machines had all of them to be lowered; altogether since the commencement we have been idle 17 days; besides this, our engine, being powerful enough, we are only enabled to dress about 12 tons of crude ore per day. When we have the other engine, we shall then have power enough which will enable us to dress about 20 to 25 tons per day of 10 hours. After the new engine is fixed and the other engine put down to work the dressing machinery we shall be in a regular way of working, and shall then make regular sales every two months.

NUNDYDROOG.—B. D. Plummer, July 15: Maharajah Reef: At the air shaft the lode in the 62 north end is 18 in. wide, composed of quartz and gossan, and is a good lode, and is continuing to yield a show of gold. At the air shaft Monday or Tuesday last a split took place in this lode, one part continued in its ordinary course, or nearly so, while the other part took a sharp turn to the east; this part is chiefly flooken with self-detached pieces of quartz; when we get the other end out of the way I shall drive some distance on this part to prove if it has a value.—Taylor's Engine-shaft, Maharajah Reef: In the 95 ft. level there is no change in the cross-course west, and this remark applies to the cross-cut east. The reason I am driving the west cross-cut is in the disordered state of the lode up to the 95 ft. level, and I shall drive this cross-cut 3 ft. to the north end on the right bearing of the lode. The south end is slightly improved, and now gives promise of further improvements.—The New Shaft North: The 66 ft. cross-cut has been driven 6 fathoms; the lode can be seen at surface, and with an underlie of 18° per fathom; we have 5 ft. more to drive before the intersection. At the intermediate shaft a cross-cut is driven east and one west. Outcrops of the lode can be seen in the nullah some little distance away, and I cannot tell with any degree of certainty how far we shall require to drive to intersect it approximately; I should say not more than 4 fathoms. At No. 5 shaft we are driving a cross-cut west, the rock is tolerably easy for cutting; as regards the lode, the same remark applies to this as to the intermediate shaft.—Eastern Reef: The lode in the end going north does not materially change, the end has been driven 80 ft. in a lode producing shows of gold for a length of 60 ft.; at present it is 18 in. wide, and a sample I had washed yesterday gave a show of gold. The west cross-cut progresses to my satisfaction; it has been driven over 90 ft., the rock is taking a better dip, and this appearance gives us some encouragement. It is with very great pleasure I have to inform you that we get on exceedingly well with native labour. The coolies are improving in the art of mining, and we are exploring rock at a reasonably fair price.

PIERREFITTE.—Aug. 7: The manager reports as follows:—Since my last report we have made the communication between the shaft and level large enough to get up some ore. The hauling up arrangement answers well, but it is rather costly, and as soon as possible we will replace it by a horse-wheel. We have cleared out the stuff (about 60 tons) lying inside end of the level, and to-day we shall begin getting up a large pile lying at the entrance of the level. This we shall hand pick this week, and that which is not pure we shall stack until we have enough water to work our crushing and dressing machines. Being encumbered with ore our men could not properly work in the end, and when the road-way was ready we put all hands during two and a-half days to work in getting it to surface. The band of rich lead continues in length, and is fully as large as ever; but we have now some difficulty in breaking it, as this part of the lode dips a little west, and we are bringing our level from the east; in driving a few fathoms we shall be over the lode. At the present moment we have the lode nearly half way up the level. Until we have a new level brought in we must sink and drive at the same time to have this ore, and that is not very agreeable, as we have a great deal of water coming out of the slide. Now the ore is cleared out, the miners will go back to the place where we struck the lode, and take up the ore left in the bottom of the level, and go on with the footwall. We can continue our level in the lode (but not with the very rich part) by turning a little to the right. We have not begun yet to work on the lode the other side of the slide as, until we have taken out the ore lying in the level we cannot tram out any poor stuff, and we shall have a good deal to take away before we can get properly into the lode. In a few days we shall begin. During the earlier part of the week we managed to crush about 45 tons of prill zinc ore, but we had great difficulty, as the crusher would bring up the wheel every few minutes, though we put between the rolls only a small bit at a time. This ore we have mixed with a part of the blende lately put through the machines, and we have now a parcel for sale of about 70 tons ready, a sample of which I send you to-day. If we can by any means crush blende again next week we shall be able to send you a sample of the same size and quality. I have 1 ton of blende, 35 tons of pure blende has been hand picked. About 100 tons of ore has been sent down from the mines and 50 tons raised. No rain has fallen for the week, and we have scarcely any water in the raise.

PITANGUI GOLD.—A telegram dated Rio de Janeiro Aug. 9, advises produce for July 3000 ozs. gold, worth, at 84. 6d. per oz., 1271. 10s. sterling.

PLACERVILLE GOLD.—July 15: The north drift, 7th level, has been extended 13 ft., making a total distance of 248 ft. The ledge is narrowed down to

about 12 in.; the green rock is giving out in the hanging-wall, and a kind of talcose rock in. The indications are favourable to find another chute of ore as we drive north. The slope above 7th level is in fair ore; have not worked a great deal in it for the past week on account of bad air. The usual amount of ore of low grade is being extracted from the east vein slopes between 6th and 7th levels. The vein at the north end is taking a sharp turn eastward. Have had two men working on the west vein between 5th and 6th levels for the past week, and have encountered some branches of very fair ore, which have not been hoisted as yet. Everything running smoothly at mill and mine.

PONTGIBAUD.—W. H. Rickard, Aug. 2: Hour: The 225 metre level, south from Taylor's shaft, is in disordered ground. The rise above this level is unproductive. The 200 metre level south is being driven in a regular lode, composed of quartz containing a little iron pyrites and spots of lead ore. The 175 metre level south produces a little low quality orestuff irregularly. The 100 metre level, south of cross-cut on Virginie's lode, yields $\frac{1}{2}$ ton of ore per centimetre. The same level north, on eastern part of the lode, yields a little orestuff. The 80 metre level south, also on eastern part of the lode, yields a little orestuff. The 60 metre level on the same part of the lode yields $\frac{1}{2}$ ton of ore per centimetre. The cross-cut at the 40 metre level has intersected a vein to the east of the main level yielding some good stones of orestuff. The adit north of Keontine's shaft has continued in unproductive ground, and the ventilation being bad is suspended. Our stops and tribute pitches throughout this mine about maintain their yield. At Seyaube the lode in the adit south is small, and again presents a disturbed appearance. At St. Denis the shaft has attained the necessary depth for a 30 metre level, and the plat cut; we have set on the cross-cut which will intersect the lode in the present month. The vein in the adit produces good stones of ore. We have no change to notice at Mioche.—La Brousse: The sinking of Alice's shaft below the 160 metre level goes on favourably, now down 30 metres. The 150 metre level, north from Alice's shaft, yields a little low quality orestuff. The same level south is in a strong lode, composed of quartz and barites spotted with ore. The 140 metre level south yields a little orestuff of good quality. The 120 metre level, north of Bassel's shaft, is unproductive. Our stops and tribute pitches about maintain their yield.—Pranal: The 110 metre level, north of St. George's shaft, yields $\frac{1}{2}$ ton of ore per centimetre. The same level south yields $\frac{1}{2}$ ton of ore per centimetre. The 90 metre level, north on western part of the lode, yields a little low quality orestuff. The same level south on the eastern part of the lode is unproductive. The 90 south on the main lode is poor. The 70 metre level south is unproductive, but we hope in a few metres more driving to get into a productive lode. The 30 cross-cut west is in pretty favourable ground. There is no change to notice in the trial cross-cut at La Combe. Our stops and tribute pitches in this mine are of about the same aggregate value as last month. Our samplings amounted to 220 tons.

RICHMOND CONSOLIDATED.—Telegram from mine at Eureka, Nevada: Week's run (one furnace), \$22,000, from 473 tons of ore; refinery, \$25,000. Have sunk few (?) feet in ore below 7th. Rise from 9th improving.

—Samuel Longley, July 16: I have to report the following advance and present condition of the deadwork for the week ending July 16:—The 400 west drift from south drift to little No. 10 chamber has been run 8 ft. in limestone. The 700 north drift from west drift at quartzite contact (Burleigh drill) has been run 12 ft. in limestone. The 700 west drift from station (Burleigh drill) has been run 12 ft. in limestone. The 800 north-west drift (Burleigh drill) has been run 9 ft. in limestone. The 800 west drift from north drift from quartzite (Burleigh drill) has been run 5 ft. in limestone. The 900 south-east drift from winze from north-east drift from north drift, has been run 16 ft. in limestone. Commenced on the 9th for the purpose of exploration.

RUBEN AND DUNDEBERG.—Report on mines for week ending July 16: Debris on the sinking of the main shaft is progressing satisfactorily; progress this week 14 ft.; total, 74 ft. below the 700 ft. level. Work has been suspended on the No. 9 cross-cut; also on the north drift from No. 8 cross-cut. The No. 8 ore body above the 700 is improving. Stopping has been commenced at three different points. The ore varies in size from 1 to 3 ft. in width. The No. 8 ore body below the 700 is not developing quite as well as it was expected. So far, we have not succeeded in tracing the ore body from the winze for any great distance. A new drift was commenced to-day from the winze at a point 40 ft. below the 700, where the ore is about 4 ft. in width. The object of this drift is to prospect the ore at this point and find out the continuation of the ore body, and does not continue in any direction from drift from the bottom of the winze. The upraise and slope near the end of the north drift from the west cross-cut 600 is producing the usual quantity of good ore. The north branch of the 300 west cross-cut has been advanced 6 ft. this week without any change. Have shipped 43 tons ore this week, and have 28 men and eight contractors at work.

SENTEIN.—Capt. Scantlebury, Aug. 1: No. 5 end, set to four men for the sum of 140 frs. per metre count. We are now driving in the lode, which is about 3 ft. wide, composed chiefly of quartz. During the past month, the winze from No. 4 to the St. Barbe level has been communicated with by this level, and the winze below No. 4 level is now nearly 12 fms. deep. The lode has almost entirely disappeared. We deem it advisable to suspend the sinking and cross-cut a little north and south to ascertain where there is a part of the lode in this direction. No. 2 slopes, in back of this level, are set to 12 men, for the sum of 20 frs. per metre cube. The lode is from 13 to 15 ft. wide, and producing 15 cwt. of lead and 12 tons of blende ores per cubic fathom. In No. 3 slope, in back of this level, the lode is 18 ft. wide, and yields 17 $\frac{1}{2}$ cwt. of lead and 1 $\frac{1}{2}$ ton blende ores per cubic fathom. In No. 4 slope, in back of this level, the lode is about 9 ft. wide, and worth 1 $\frac{1}{2}$ ton of lead and 3 tons of blende ores per cubic fathom. We have had a very bad break in the hanging side, and to secure this has taken a great deal of timber and labour. We hope to have the place ready in a few days to resume stopping. This is the best piece of ground standing in the mine.—No. 3 level: Slope No. 2, below this level, is set to eight men for the sum of 15 $\frac{1}{2}$ frs. per metre cube. The lode is about 18 ft. wide, and worth 15 cwt. of lead and 1 $\frac{1}{2}$ ton of blende per cubic fathom. In slope No. 3, below this level, the lode is about 10 ft. wide and worth 1 ton of lead and 2 tons of blende per cubic fathom.—No. 3 level, eastern part of mine: Slope No. 1, in back, is worth 15 cwt. of lead and 1 ton of blende per cubic fathom; 1 ton of lead, 20 ft. In No. 2 slope, above this level, we are stripping down the lode under the horse, which is from 8 to 12 ft. wide, and worth 1 ton of lead and 1 ton of blende ores per cubic fathom. No. 2 end is set to four men for the sum of 130 frs. per metre count. The lode is about 1 ft. 6 in. wide, composed of quartz. For the past month there has been raised 1660 tons of crude ore, 1175 tons of which have been sent to the dressing floors; there are now broken at the mine 500 tons.

STANDARD DIAMOND.—F. B. Salomons, Kimberley, July 13: You will have observed by the weekly returns that the output of blue has increased considerably, and the finds, picking, and breaking up have been very fair. The parcel diamonds I send you to-day (903 $\frac{1}{2}$ carats) is the result of six days' picking and breaking up; no washing having been done we shall not be able to commence washing for another ten days. The new uptake was finished in the middle of the week, and I think it will stop nearly all reef from east side falling into the claims. Next week I shall be able to show you a greatly reduced wages' sheet, as all white labourers have been discharged, and all night work, except reef pulling with one engine, has been stopped. Number of 16 cubic feet of reef washed, 3272; number of loads of blende washed, 302; no blende washed. 391 carats of diamonds found in claims; 462 carats of diamonds found in breaking up; total value of diamonds, 19000; value of reef hauled, 6894, 19s.; total of wages' sheet, 15857. 3s. 2d.

ST. JOHN DEL REY.—Telegram from Morro Vello, Rio de Janeiro, Aug. 11: Produce for the month of July, 17,000 ozs., value 6587; yield 30 ozs. per ton. Cuabais, 650 tons; stamp yield, 130 tons, per ton.

SOUBACK AND CATIR ALAN.—A series of samples of ore sent to England from June 27 to July 1 have been assayed, and subjoined are the reports of the results:—Samples of one box of jigged ore from Cosmas lode: fine gold, 36 ozs.; 18 dwts. 6 grs.; fine silver, 787 ozs. 15 dwts. 3 grs.; 824 ozs. 13 dwts. 5 grs.; argenteriferous gold per ton. Sample of one box re-jigged ragings from Jigger, Cosmas lode: fine gold, 38 ozs. 4 dwts. 9 grs.; fine silver, 569 ozs. 7 dwts. 14 grs.; 607 ozs. 11 dwts. 23 grs.; argenteriferous gold per ton. Sample of bag of picked ore from Cosmas lode: fine gold, 178 ozs. 10 dwts. 11 grs.; fine silver, 2438 ozs. 17 dwts. 20 grs.; 2517 ozs. 8 dwts. 7 grs.; argenteriferous gold per ton. All the foregoing samples are dated June 27. Sample of two boxes of jigged ore from Cosmas lode, July 8: fine gold, 20 ozs. 4 dwts. 8 grs.; fine silver, 323 ozs. 4 dwts. 18 dwts. 20 grs.; 2517 ozs. 8 dwts. 7 grs.; argenteriferous gold per ton. Sample of six boxes of ragings from Jigger, Cosmas lode, July 11: fine gold, 10 ozs. 2 dwts. 12 grs.; fine silver, 115 ozs. 6 dwts. 6 grs.; 125 ozs. 8 dwts. 18 grs.; argenteriferous gold per ton. In a report upon the Souback portion of the property, Mr. Henry Hoskings (Aug. 3) writes:—The range of hills run north and south, and is traversed by large east and west lodes, varying from 4 to 50 ft. in width, containing galena, zinc, blende, yellow copper ore, gold and silver, varying very considerably in value for the different metals, as will be shown by the assays of ore now ready for shipment at Kerasand. It would be impossible for me to say how many in addition to the eight lodes there are on this part of the property, as it is not yet sufficiently explored, but there are eight exposed—one in every ravine all along the range, and these lodes have large feeders running into them, some of which are very rich, and large enough to be worked as lodes. On my arriving at Kerasand on my way home, I was much disappointed on finding there more than 14 cases, or about 1 ton of the ore we had sent from the mines from time to time, and which I thought had been sent home still there, and on enquiry I found that through the difficulty with the Government the lode had been sent to them, but on arriving at Constantinople Mr. Seefelder, one of our directors, told me that on July 27 Mr. Daniel Poppa had a paper, signed by the Government authorities, authorising me to export our ore, paying the Government—or rather their taking—5 per cent. of it, as it is exported from Kerasand, and that we buy it back from them again, paying according to the Government analysis. This arrangement when forwarded to the right authorities will enable us to ship at once all we require.

CROOKE'S MINING AND SMELTING COMPANY.—The statutory meeting of shareholders was held at the company's offices yesterday, Mr. J. C. Thorold Rogers, M.P., in the chair. The Chairman entered into particulars as to the character of the property acquired by the company from the Messrs. Crooke's Brothers, and remarked that all subsequent examinations had proved the correctness of the views he expressed in the letter he addressed to the board. Everything had been done with the greatest caution, and the guarantees were all that could be desired. Messrs. Crooke's Brothers held the largest interest in the company, and as showing their great confidence in the undertaking they would not participate in any dividend until the shareholders had received a cumulative dividend of 15 per cent. Mr. Crooke calculated that when new machinery was erected (expected on Aug. 1) the profit would be about 307. per day, and if so, he (the Chairman) need not say that results to the shareholders would be most satisfactory.

During the three months the company had had possession of the property, attention had been particularly directed to the erection of machinery and the construction of dressing floors, as the dressing of the mineral at the mouth of the mine would be much more economical to the company. The reason why the share certificates had not been issued was that they were awaiting the report of Mr. Angles, their solicitor, as to the titles of the properties (which were covered by United States patents, so that no fear need be entertained of litigation), and which would shortly be ready, besides which the board had decided that the shareholders should have instead of certificates for the number of shares they held separate share certificates for each share, which of course involved a great deal of time. He believed they had purchased a property at a very reasonable price, and congratulated the shareholders on the prospects before them. The working capital was ample for the purposes of the company.

BRITISH MINES.

DEFECTIVE ORIGINAL

Figure 1. The effect of the concentration of the H_2O_2 solution on the amount of the released H_2O from the H_2O_2 -loaded hydrogel. The amount of the released H_2O was measured by the weight difference of the hydrogel before and after the release. The concentration of the H_2O_2 solution was 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, and 1.0 wt. %.

of ore, which will pay for working. Three men to tram and fill all stuff in the mine at 5s. per score of skip-loads. Hauling and dressing going on as fast as possible, and the machinery in good order.

NEW HOLMBUSH.—H. Bennett, Aug. 9: The water is now in fork about 9 fms. below the 120, and the shaftmen are engaged in clearing up the shaft in order to reach the 137. The 120, to drive south on the lead lode, by six men; the lode is 4 ft. wide, yielding some good work for silver-lead. The ground has been a little stiffer during the past month than usual, and we have driven 4 fms. I hope to be able to commence to rise in the back of this level during the present month, so as to open up ground for stopping. We have holed the rise in the back of the 120 east, on Flapjack lode, to the stop in the bottom of the 110. We are now engaged bringing down a stop about 3 fms. high to the bottom of the level and for 6 fms. long. When this is accomplished we shall commence at once to drive the 120 east, where we expect to open up a good piece of ground; the lode at present is about 4 ft. wide, yielding good quality arsenical muffle and copper ore. The top 100 has been cleared west to the lead lode. We are now engaged in clearing the level south on the lead lode. A rise in the back of the 100, on the Flapjack lode, by four men; lode yielding arsenical muffle of average quality and copper ore. The 70 has been driven west, by four men; the lode is improving, with a little muffle and copper. We have driven 7 fms. during the past month. To 70 to drive east, on the Flapjack lode, by three men; the lode is 2 ft. wide, composed of quartz, capel, and a little muffle, with an improving appearance. We have driven here during the past month 1 fm. 5 ft. These two ends have hindered this past month by a breakage to the engine working the air compressor.—Stopping: Three stops in the back of the 120, on the Flapjack lode, working by 18 men; lode yielding good quality arsenical muffle, and a fair quantity of copper. Two stops in the bottom of the 110, by 12 men; lode yielding good quality arsenical muffle and a little copper ore. Four stops at the 100, Flapjack lode, worked by 18 men; lode yielding good arsenical muffle and a little copper. We have six other stops in various levels on the Holmbush and Flapjack lodes working by 26 men; lode yielding fair quality arsenical muffle and a little copper. I hope in the course of another month that we shall be able to commence stopping on the silver-lead lode at the 120. We have commenced to dress a large pile of stuff sent to the surface from the lode, and when we get some more machinery, for which we are preparing, we shall make greater dispatch in dressing this ore for market.

NEW KITTY.—Wm. Vivian, Aug. 10: There is no change to notice in this mine since last week.

NEW TRUMPET CONSOLS.—Rd. Quantrell and Son, Aug. 10: Franchise Lode: We have had a very favourable change in the 12 east driving during the last day or two. The lode is now producing some good tinstuff, and is letting out water freely. It has drained the level above, and from present appearances we are expecting a speedy improvement.—Wheal Vail's Lode: We have lately been driving and stopping east of shaft at the 15 for a fork, preparatory to fixing lift at this level. We shall do this as soon as possible in order to resume the sinking of the shaft below the 15. The 70 has been driven west, by four men; the lode is a little smaller, but is again opening out. In the adit level, driving east on the south lode, we are now raising some good tinstuff for the stamps, and the lode is looking very favourable.

NEW WEST CARADON.—N. Richards, Aug. 9: The lode on which we have been opening out east in the 38 cross-cut, south of Hallett's shaft, is a strong kindly looking lode, producing a little copper ore. Within the last day or two we have blasted some holes west of cross-course on this lode, and find it is about 2 ft. wide, and is also producing stones of ore. The little north lode at this level, driving west of cross-course, is producing good work for copper. The rise in the back of the 42 fm. level, on the main lode, will yield $\frac{1}{2}$ ton of copper ore per fathom. A winze sinking below the 53, on this lode, will yield $\frac{1}{2}$ ton of copper ore per fathom. The counter lode at this level has much the same appearance as when reported on last week.

NEW WHEAL PEEVOR.—Wm. T. White, Aug. 10: I am pleased to say we have cut a level of the lode in the cross-cut north, in the adit level; it is about 6 in. wide, and will make a produce of $\frac{1}{4}$ of black tin to the ton of stuff. I broke a barrowfull of stuff from it to-day, and several of the stones will produce more than 1 cwt. to the ton; it is a little north about $\frac{1}{4}$ ft. in a fathom. The lode we are driving for underlies south, and was worked from New Treleigh some years ago in the 30. The stuff from the lode we now have in the cross-cut and this lode are exactly similar to each other, and must be one and the same thing in depth. I am very pleased with the appearance of the stuff, and shall break a parcel as soon as possible. We shall still continue the driving of the cross-cut for the other part. This being one of the Wheal and West Wheal Peevor lodes shows that the run of tin continues through the extensive set of the latter, and beyond its boundary into this mine. I hope to report more fully on this in my next.

NORTH GREEN HURTH.—J. Polgaue, Aug. 3: The ground is very regular in the deep adit level. The vein north-east is producing stones of lead ore, ground good for driving. The shallow level cross-cut is resumed at 55s. per fathom.

NORTH GROGWINION.—J. Kitto and Son, Aug. 5: The 36 fm. level is being driven east and west of the new shaft on the course of the lode by full sets of men, and is consequently advancing at a very satisfactory rate in both directions. At present the lode in these ends is not as firm and settled as we could desire, though it still yields a little lead ore, and we are daily expecting a favourable change, especially in the westerly direction, as this point will soon get under a short run of productive ground driven through in the level above. The 24 fm. level, driving east, has not yet entered the course of ore ground seen in the upper levels in this part of the mine, and as we find in the winze, now being sunk below the 12 and just immediately over the forebreast of the 24, that the lead ore is gaining towards the east as it deepens, we shall probably drive the 24 some 3 or 4 fms. farther before reaching it. There is no change worthy of remark in any other part of the mine. The new pumping, winding, and dressing machinery continues to work well, and our dressing operations are going on satisfactorily. We have expended 25 tons of lead ore for sale on the 31st inst.

NORTH HERODSFOT.—E. Trelease, Aug. 10: The lode in the 117 end has been producing some good stones of ore this week. It is also producing more muffle, and the ground is more favourable for driving than it was when last reported. The stop in the back of this level continues to yield about 12 cwt. of ore per fathom. I purpose to put men to work a stop in the bottom of this level next week, and also to drive the 80 end north on the branch intersected in the cross-cut some time since.

NORTH PENNERSITH.—Stephen Davey, Aug. 8: We have cut through the lode in the 132 cross-cut, which is about 5 ft. wide, composed of chlorite, quartz, muffle, and a small percentage of both tin and copper. In the 120 west we have met with a patch of elvan; the lode presents a good appearance, and is producing a little black copper ore. There is no other change to note.

OKEL TOR.—H. Bulford, John Roddy, Aug. 10: The cutting down of the new shaft is progressing rapidly, and will be completed to the 50 by the end of next week. The stop in the back of the 65, in the western part of the mine, are looking better than for some time past, those in the 35 producing 14 tons of arsenical ore per fathom.

PANDORA.—H. Nottingham, Aug. 7: The new lode in the 45 fm. level, driving north, has further improved for lead, worth now full ton to a fathom, and about the same quantity of blende; a very nice looking lode. The two stops in the back of this level, north of No. 1 winze, are not so good as last reported, as we are in a disturbed piece of the lode; worth now 1 ton of lead and 25 cwt. of blende each to the fathom. We are making better progress here now, though the ground keeps unusually wet for stopping around this winze. The stop over level, south of winze, is worth about 1 ton of lead and 25 cwt. of blende each to the fathom. In the No. 3 stop north is producing 12 cwt. of lead and 1 ton of blende to a fathom and ground easy.—Goddard's Lode: In the 33 fm level the stop north of No. 3 winze, over south end of this level, is looking better; worth about 1 ton of lead and 15 cwt. of blende to a fathom; a stop now being resumed north of this winze is worth 12 cwt. of lead and 1 ton of blende to a fathom.—Surface: We are now able to keep the crusher running full time again, and so hope to see more ore going to pile. Machinery all doing its duty as usual. The continued fine weather we are having is sinking our Lake reservoir very rapidly, so that I fear we must use the engine for pumping yet.

PARYS COPPER CORPORATION.—F. Mitchell, Aug. 10: The 90 east, on No. 2 lode, is showing a little more copper this last day or so, but not sufficient yet to value. The end looks very promising. The lode in the sink in bottom of the 90 appears to be opening out wider in going down, and we are getting out some good rocks of ore, although one part of the lode is pretty much mixed up with chert; it will yield on the whole about 3 tons of copper ore in a fathom.

PATERSYKE AND CLARGILL HEAD.—John Peart, Aug. 4: The top level, south end, continues about the same as last reported. In the north end some good ore mixed all over the forehead, and the vein is now standing perpendicular with two good checks 4 ft. wide, and likely to carry much higher, and yield a larger quantity of lead ore. In the low level we have got up to the end of the arch where the level is closed, and are taking out the worst part of it, and putting in timber. It will be rather slow for a few fathoms, being all crushed together, and the sides not very good. We have cleared out and laid with new iron rails 200 fathoms since we commenced.

PENNAINT.—Aug. 10: The rich tin lode in the 20 east has been increased, as we believe we are not far from a good body of lead ore. Operations on the dressing floor are proceeding in a very satisfactory manner.

PEN-YR-ORSEDD.—R. Prince: The shaft repairs will be finished this week and now that the property is thoroughly drained we purpose commencing to sink, and have no doubt of opening up a good mine.

PENHALLS.—S. Bennetts, J. Gwynn, Aug. 9: There has been no lode taken up in the 50 west end since last reported on. In the 70 east the lode is disordered and unproductive. The north lode in the 60 north cross-cut is being opened out on the east side of the cross-course; thus far it is not out of the disturbing influence of the cross-course. The winze below the 55 is worth 20s. per fathom. The north lode in the 50 north is producing occasional good stones of tinstuff. In the 40 west there is no change to notice, and the winze below the 30 is worth 12s. per fathom.

PIONEER.—Aug. 9: Engine-Shaft: There is no particular change since last report. The 85 east looks much the same, though perhaps not quite so wide, but shows a very indication of improving and widening out. The 85 south has improved, and in my candid opinion we shall open out into a strong flat of ore here before long.—Dressing Floors: We are busy dressing our parcel of ore for sale to-morrow.

POLROSE.—W. Bennetts, Aug. 9: The shaftmen are making fair progress with their contract; the shaft is now down 8 fms. 3 ft. below the 100; the south or flooken part of the lode is going off a little flatter, leaving a horse of kills between it and the north part of the lode. The north part of the lode has a well defined wall, and is about 2 ft. wide, producing good work for tin. We are saving out the leadstuff as carefully as possible, and I am going to have a sample assayed this week to ascertain its value. I have reset the winze below the 100 to four men, at 7s. 10s. per fathom; this winze is now sunk 5 fms. below the level; the lode is increasing in size, and showing stronger muffle. I think the lode is changing here for the better as we get deeper, similarly to what it has done in the shaft.

PRINCE OF WALES.—S. Roberts, Aug. 9: Setting Report: The 102 east set on Saturday last to six men, at 10s. per fathom; lode 3½ ft. wide, worth 6s. for tin and 4s. for copper ore per fathom. The 12 west to six men, to cross-cut north on the cross-course; the lode, at 5s. per fathom. The 85 east to six men, at 10s. per fathom; lode 4 ft. wide, a kindly lode producing very little muffle of the end copper ore. Stop in back of this level, at 5s. per fathom. The 80 east to six men, at 10s. per fathom; lode 4 ft. wide, and 7 ft. deep, at 5s. per fathom. The 70 east to six men, at 10s. per fathom; lode 4 ft. wide, and 7 ft. deep, at 5s. per fathom. The 60 east to six men, at 10s. per fathom; lode 4 ft. wide, and 7 ft. deep, at 5s. per fathom. The 50 east to six men, at 10s. per fathom; lode 4 ft. wide, and 7 ft. deep, at 5s. per fathom. The 40 east to six men, at 10s. per fathom; lode 4 ft. wide, and 7 ft. deep, at 5s. per fathom. The 30 east to six men, at 10s. per fathom; lode 4 ft. wide, and 7 ft. deep, at 5s. per fathom. The 20 east to six men, at 10s. per fathom; lode 4 ft. wide, and 7 ft. deep, at 5s. per fathom. The 10 east to six men, at 10s. per fathom; lode 4 ft. wide, and 7 ft. deep, at 5s. per fathom. The 0 east to six men, at 10s. per fathom; lode 4 ft. wide, and 7 ft. deep, at 5s. per fathom.

to two men, at 6s. per fathom; lode 4 ft. wide, worth 8s. per fathom for tin and copper ore. No. 2 stop, to four men, at 5s. per fathom; lode 4 ft. wide, worth 8s. per fathom. No. 4 stop, to two men, at 5s. per fathom; lode 4 ft. wide, worth 7s. per fathom. No change nor setting in the tribute department.—Goodluck: Stop in back of the 28, to two men, at 5s. per fathom; lode 5 ft. wide, worth 7s. per fathom.

REDMOOR.—H. Bennett, Aug. 9: The engine-shaft is cased and divided to the 80 fm. level, with ladder road complete. Our pitwork, roads, &c., are all complete from the surface to the 70 fm. level below the adit. The shaft is all clear from the 80 to the 100 fm. level, and the shaftmen are now engaged casing and dividing the shaft to this level. It appears that the water is close up to the bottom of the level, and we find there is stuff in the shaft. Whether there is a solar over the shaft, at the bottom of the shaft, I have not as yet been able to ascertain. Next week we shall commence cutting ground at the 100 fm. level for cistern and pole connection, and the main rods, pumps, &c., are ready to send down. We have several men clearing the 70 and 80 fm. levels on Johnson's lode, and fixing ladder road in the winzes from the 40 to the 80. The lode in the various levels varies from 2 ft. to 4 ft. wide, composed of arsenical muffle, a little copper ore, and tin. We shall be in a position next week to put several men to stop, when I shall be able to say more as to the value of the lode at the various points.

ROMAN GRAVELS.—A. Waters and Son, Aug. 10: The ends and stopes here are yielding ore in quantities quite up to late reports and valuations. Surface operations going on well. Will send detailed report next week.

RUSSELL UNITED.—J. Bray, Aug. 10: The lode in the 97, east of Matthew's shaft, is 4 ft. wide, spotted with copper and muffle. The ground in the cross-cut north at this level is easier for driving, and letting out water. These indications lead us to believe we are getting near the lode. The lode in the 55, east of cross-cut, is 3 ft. wide, with a leading part on the north 1 ft. wide, producing good saving work for copper ore, and at present is a very kindly end. In consequence of the floor and ground becoming so heavy and troublesome, and bursting with water at Stephen's shaft, we think it advisable to come up about 12 fms. from the bottom of the shaft, then carry it down to the north of the said flooken to about 45 fms. deep, then cross cut south to the lode, where we expect to intersect a good lode of copper.

SILVER HILL.—G. Rickard, Aug. 9: The tunnel level forebreast to-day is presenting the same strong indications of nearing the lode as before notified. The ground still continues to be of a first-class description for the production of mineral; some of the last leaders passed through contain more arsenical muffle, which is the kind that the most productive lodes for tin and copper in the district are associated with; this strengthens my opinion regarding the value of the lode when intersected. Our progress is now about 3½ fms. per week. We are putting in tramroads in the eastern drive on Wheal Brothers lode, and hope to get it finished by the end of this week. The engine is working very satisfactorily, also the new drill.

SINCLAIR.—W. Edwards: In sinking the new shaft the men are progressing rapidly, and find small veins containing rich spots and patches of lead ore. As the shaft goes down the indications are altogether of a highly satisfactory character; we are still free from water, which shows the advantage we have and shall derive through the shaft being walled down to the rock. The engine works admirably, and as soon as we reach a depth of 50 yards—say, in about four or five weeks—we shall at once throw out a cross-cut to intersect the many well-known lodes traversing the set, and I look for immediate and large returns.

SORTRIDGE COPPER.—Wm. Skeels, Aug. 10: No particular alteration to report in the underground operation since last week; still making good progress in clearing the deep adit, and the water is gone down in the engine-shaft about 8 ft., and still continues to go down at the same rate. The axle of the water-wheel is in its place, and ready to be set to it, and nearly all the arms fixed. The men are getting on well with making the large reservoir for the water, and the carpenters in preparing the woodwork for the biddles and other necessary parts of the dressing machinery.

SOUTH DAREN.—H. James, Aug. 10: There is no very important change in any of the bargains. The lode in the 130 east is getting more mixed with lead, worth at present 12 cwt. per fathom. In the 120 east the lode is stronger, and from appearances it is likely to further improve in the advance. We have not yet cut through to the full width of the lode. In the same level, west the lode is worth 2½ tons silver-lead ore per fathom. We have put the air machine to work in the 110 east, and the end is now being driven by six men. The lode is opening out better. The 100 tons of copper ore sold on the 4th realised 345s. 10s.

SOUTH DEVON UNITED COPPER.—Wm. Hooper, Aug. 10: Not being satisfied we had the main part of the lode at the 110, east of Brook engine-shaft, the men have been during the past week driving north, which has been extended in this direction about 2 fms., and have cut, in my opinion, the south part of the lode. As far as seen, it contains spar, muffle, and stones of copper ore. We shall be able to sink north or local of the lode. The stopes in the back of this level are worth respectively, No. 1, 9s.; No. 2, 10s.; No. 3, 8s. per fathom. The lode in the rise against Martin's shaft, in the back of the 90, is 4 ft. wide, producing muffle and good stones of copper ore; we expect daily to make a communication with the 80 end. The lode in the 80, east of Brook engine-shaft, is about 4 ft. wide, and in appearance about the same as for some time past. The stopes in the back of this level are worth, No. 1, 7s.; No. 2, 7s.; No. 3, 5s. per fathom. The lode in the adit level, west of old pump shaft, is 3 to 4 ft. wide, producing gossan, with spots of muffle and copper ore. There is little or no change in the character of the ground, and in producing large quantities of ore by deeper working.—Eickstone's Shaft: Very little has been done in the sinking of this shaft this week in consequence of not having sufficient water to work the level to keep the mine in fork. However, we now have men on the moor last endeavouring to get more home, and every effort shall be made to get as much as possible; this has been invariably the case during the summer months to keep this part of the mine drained to the bottom. Previous to this good duty has been done, and we shall have sunk 5 fms. this month had not the scarcity of the above occurred.—Martin's Shaft: There is little or no change in the character of the ground, it being about the same as for some time past; consequently, the men are making their usual speed of sinking. The exact depth shall be given you next week.

SOUTH TO CARNE.—T. Angove, S. Arthur, Aug. 9: The lode in the bottom of engine-shaft is 6 ft. wide, worth 15s. per fathom. The 70 ends, east and west, are looking well, the same value as last reported. We shall, however, suspend the driving of these ends for a short time, until we cut ground for plot at this level. The 60 end west lode is 4 ft. wide, worth 10s. per fathom. The rise in back of this level is worth 10s. per fathom. The 60 end east is worth 6s. per fathom. The 50 end west is worth 8s. per fathom. The 50 end east is worth 6s. per fathom. The lode in the 40 end east is 5 ft. wide, and worth 7s. per fathom. The rise in back of the 20 is still producing rich stones of tin.

TAMAR SILVER-LEAD AND FLUOR-SPAR.—R. Goldworthy, Aug. 9: The men are making good progress in the rise against the new shaft, which is up about 12 fms. 3 ft. The lode is 5 ft. wide, composed of capel, spar, white iron, muffle, and good stones of silver-lead. Judging from its promising appearance, we expect further improvement daily. The lode intersected in the cross-cut has been in the water, and no appearance of the westerly wall. As far as seen it has a strong masterly appearance, composed of conical capel, friable spar, white iron, muffle, with silver-lead disseminated throughout, and letting out water freely. We hope to have it cut through by Saturday.

TANKERVILLE GREAT CONSOLS.—Arthur Waters and Son, Aug. 10: There is no change in either of the mines here to call for remark since reported on last week. The various points under development are all being pushed on as fast as possible, and the lode in the 162 end is nearly as well as completed. You shall have a report on these mines next week.

TREBARTHA LEMARNE.—W. Skeels, Aug. 10: The rise in back of the main adit is communicated with the shallow adit, and four men are now set to stop west from the end of the rise in back of the deep or main adit; also two men to rise in back of the shallow adit, to communicate with surface. When this is done we shall have a good winch-shaft from surface to deep adit, and which is intended to be continued in connection with any deeper levels that may be driven west of the engine. The engine-shaft has been commenced and made good to the level of the water, and is strongly timbered for 2½ to 3 fms. The ground has all been taken out for water-wheel pit and lobby, and the masons now engaged in building the walls to carry the wheel. Every effort will be made to complete this, and to erect the wheel as quickly as possible, in order that the sinking of the engine-shaft may take place with the least possible delay. The great size and value of the lodes already proved by the drainage of the deep adit, together with that now to be seen in the end, justifies the expectation that a great and valuable mine will speedily be opened up here. The sink and extensive water-power, and other important advantages for working this mine, are very superior to what is usually met with in this part of the country.

TREGBEMBO.—Edward Chegwain, Aug. 8: I beg to hand you my report of the above mine. The engine-shaft, sinking by 16 men, is going down rapidly, the ground having very much improved; water here much the same as last reported.—Adit End, east of Pinick's Shaft on Tregembo Lode: This tin lode is 3 ft. wide and worth about 25s. per fathom. In the adit end, driving west of cross-cut, on south lode, the lode is about 1 ft. wide, producing grey copper ore worth 2s. 6d. per fathom. The stop in the back of this level is further improved, and will now yield fully 1 ton of ore per fathom, and likely to further improve.

TREVAUNANCE UNITED.—Wm. Vivian, Aug. 10: In the cross-cut driving in the 55 our progress is rather slow, but the country rock is congenial for tin. In the 55, driving on the north lode, east of middle shaft, the lode is 2 ft. wide, producing a little tin. Our tribute patches continue to yield their usual quantity of tin.

VAN CONSOLS AND GLYN.—James Ronch, D. Douglas, August 9: The 70, west of Murray's shaft, is still producing spots of lead throughout, but hardly enough to send the stuff to the dressing-floor. We save what we can of it underground. The ground is favourable for progress and promising for improvement. The level driven east of No. 2 stop, on south part of lode, has improved during the last two days, present produce 25 cwt. of lead per fm.; No. 2 stop yielding 12 cwt. per fathom; No. 1 stop 18 cwt. per fathom. The drive east of No. 1 stop in middle of lode will produce 1 ton of lead per fathom. The rise from the intermediate level to the 40, east of No. 1 stop, is accomplished. We have this day commenced to extend this pass from the 40 to the 50, and will push it on as fast as possible. This main pass for the south part of the lode, west of Murray's shaft, when completed, will save much labour in transmitting stuff from the 40 and the intermediate level, besides ventilating both levels. The inlet at the 40 is close to the stopes and the outlet at 50 within 10 fms. to the plat. The 50, west of Gundry's shaft is without change to notice since last reported. The 50 cross-cut, south of Gundry's shaft, lode getting more compact and looking very promising. We are in hopes to find something good here before reaching the south wall. We shall sample a parcel of lead ore on Monday next.

WEST CARADON.—N. Richards, Aug. 9: A stop in the back of the 50, east of rise, on Vivian's north lode, will yield 1 ton of copper ore per fathom. A stop west of ditto will yield $\frac{1}{2}$ ton of ore per fathom. A stop in the back of the 38, west of cross-cut, on this lode, will yield 1 ton of ore per fathom. A rise west of ditto will yield about 2 tons of ore per fathom. Taylor's lode, in the back of the 38, west of main cross-course, will yield 1 ton of copper ore per fathom. Gilpin's lode, in the 38, west of main cross-course, is producing stones of ore; this lode in the adit level is larger, and producing a little more ore than when last reported on. The stop in the back of this level is further improved, and will now yield fully 1 ton of ore per fathom, and likely to further improve.

WEST DEVON UNITED.—J. Anderson, Aug. 9: The shaftmen have completed the driving of the trip up to the 80, and the driving of the shaft has been resumed at that level, and will now yield 1 ton of ore per fathom, and likely to further improve.

per fathom. The lode in the shaft is 5 ft. wide, yielding good stones of copper ore and muffle; a very promising lode, with every indication of a speedy improvement. The 50 east was set to drive by two men, at 6s. per fathom. The lode in this end is opening out wider, which is now 3½ ft. wide, composed principally of quartz, capel, muffle, and good stones of copper ore. The 50 west was set to drive by two men, at 7s. per fathom. The lode in this end is 2½ ft. wide, yielding a little ore and muffle, but nothing to value.

WEST DEVON GREAT CONSOLS.—G. Rowe, Aug. 9: The stratification of the rock in the engine-shaft, near the required depth for a 35 fm. level, is of a beautiful description for the production of mineral, and the lode of the same good appearance for a speedy improvement in copper ore. Our progress in sinking during the past week is very satisfactory.

WEST GODOLPHIN.—T. Hodge, Francis Hodge, Aug. 8: The 70 west end produces saving work for tin and yellow copper ore. The 70 east produces stamping work, the lode holds out good promise for improvement. The 80 west produces occasional rich stones of tin. The 60 rise is worth 10s. per fm. In the 50 end the lode is small, but at times produces some rich stones of tin. We have taken the men from this end and placed them to sink a winze below said level to communicate with the 60 rise; this done we shall increase our output of stuff. The stop in the back of the 50 is worth 15s. per fathom.

WEST HOLWAY.—R. Rowlands: We are driving both east and west at the 145 yard level, and I am pleased to say that every foot advanced we find the lode improving in character, and containing increased quantities of lead ore. The pile of stuff drawn to surface yesterday was very good, and clearly proving, in my opinion, that we are entering a large deposit of lead ore; and, looking at the great extent of stopping ground that we shall lay open in driving these levels, our prospects are, indeed, looking splendid. In the 110, I am glad to say, copper ore has been found (2½ tons per fathom), and we have even to surface this week by far the richest pile of lead that I have ever seen from this point, and the lode is still opening out well. On the dressing-floors we are very busy, and I hope in future to keep a good staff of men going.

WEST KITTY.—W. Vivian, Aug. 10: In the 72 driving east the lode is worth 9s. per fathom. In the 30 driving east the lode is worth 10s. per fathom. Stopes in back 80, lode worth 25s. per fathom. Stopes in back of 72, lode worth 50s. per fathom. Stopes in back of 60, lode worth 25s. per fathom. No change to notice at any other points of operation since last week.

WEST PATLEY BRIDGE.—David Williams, Aug. 10: The lode in the 56 north-west is 2 ft. wide, carrying gossan, spar, and stones of lead ore; reset for the month at 90s. per fathom. The rise in the back of the level is up 7 fms. in a lode 1 ft. wide, and producing saving work for dressing. We have two pitches wrought at 100s. per ton of dressed ore.

WEST VOR AND LEEDS.—S. Harris, Aug. 10: The winze sinking below the adit level on the Sosen lode is down 9 ft. The lode continues to improve as we sink; it is fully 5 ft. wide, well defined, and underlies 4 ft. in a fathom, so the intersection with the Great Vor main lode will take place about 40 fms. below the adit level at a point I think I cannot fail producing good results.

WEST WHEAL PEEVOR.—W. T. White, Jas. Pryor, Aug. 10: The shaftmen are making satisfactory progress in sinking the shaft below the 48. The main winze, sinking below the 48, will be sufficiently deep enough for the 60 next week, when we shall at once begin driving west at that depth in under the good run of tin ground we have in the 48. The lode in the winze is without change since the meeting. The lode in the 43 west is worth 30s. per fathom, and has greatly improved of late. We hope to communicate the rise in back of this level with the winze sunk in bottom of the 36 this month. This will then give us good ventilation, as well as open up a good section of stoping ground. We expect next month (when this communication is effected) to begin sinking a winze in the bottom of the 43, near the end, in a good lode of tin. This will be a good point. We have not yet cut the lode west of the cross-course. The stopes are without change. At surface we are pushing on the work as fast as possible, and I hope to be burning our tin in about three or four weeks hence. We had a good sale of tinstuff last week.

WEST WHEAL TOLGUS.—Capt. John Gilbert, Aug. 10: Richard's Shaft: In the 105, west of shaft, the lode is 6 ft. wide, and yielding fully 4 tons of vein, carrying a small amount of good copper ore. The 132 west to drive by four men, stent the month, at 6s. 10s. per fathom; the lode has a very promising appearance, with stones of good quality copper ore, but not sufficient to value. The No. 1 winze, west of new shaft, to sink below the 120 by six men, stent the month, at 13s. per fathom; the lode is 1 ft. 6 in. wide, composed of muffle intermixed with spots of copper ore. No. 2 winze, east of new shaft, to sink below the 120 by six men, stent the month, at 12s. per fathom; the lode is worth 16s. per fathom; we shall force on this winze with all possible dispatch to communicate with the 132 end on the north part of the lode. The 168 to drive east of new shaft by two men, stent the month, at 8s. per fathom; the lode is unproductive. The 168 cross-cut north to drive towards the Bridge lode by six men, stent the month, at 8s. per fathom. To stop the bottom of the 168 by two men, stent the month, at 7s. 10s.; the lode is worth 30s. per fathom. No. 1 stop, in back of the 96, by six men, stent the month, at 4s. 10s.; the lode is worth 30s. per fathom. No. 2 stop, in back of the 96, by four men, stent the month, at 3s. 10s. per fathom; the lode is worth 10s. per fathom. No. 3 stop in back of the same level (the 96) by four men, stent the month, at 2s. 10s. per fathom; the lode is worth 10s. per fathom. The 43, east of new shaft, to drive by four men, stent the month, at 7s. 10s. per fathom; the lode is 6 ft. wide, and worth 15s. per fm.

WHEAL FORTUNE.—R. W. Dowling, C. W. Philip, Aug. 9: In the winze in the bottom of the 30, east of engine-shaft on the Well lode, the branches have now come together, and are making direct for the Harrowbarrow lode. The indications are very favourable for a speedy discovery of silver at the junction. The tributaries on the muffle lode are raising some excellent copper and arsenical muffle.

WHEAL GEORGE.—C. Kneebone, Aug. 9: In the deep level north we have more lead on the floor wall in level ore, but less graphite in the lode, than I have hitherto seen; the ground continues favourable and of increasing promise for lead ore. Mills and outside operations going on steadily as reported before.

WHEAL GRENVILLE.—T. Hodge, Aug. 9: Gould's shaft is 2 fms. below the 190 fm. level, the ground in which is hard. The 190 east end is worth 10s. per fathom. The 178 east end is worth 14s. per fathom. The winze below said level is down 2 fms., the part of the lode carried is worth 12s. per fathom. This winze is suspended, the water being too powerful for manual labour, and the men put in the 165 east level, to commence a winze in a lode worth 30s. per fathom. The 165 east end is worth 12s. per fathom. The 165 west end is poor. The 150 east end is worth 18s. per fathom. The 140 east end is worth 12s. per fathom. The 120 west of the western shaft is worth 8s. per fathom. All surface work is going on in a satisfactory manner.

WHEAL LUSKY.—Wm. Skeels, Aug. 10: The winze in bottom of the deep adit is sunk 4 fms., and I am glad to say that the various parts or lodes as seen therein are concentrating in depth, and it appears to me that by the time the winze is sunk 3 or 4 fms. they will form themselves into a large and important and I think productive lode.

WHEAL UNY.—W. Hambley, W. Prophet, J. White, Aug. 10: Saturday last being our pay and setting, we set the following bargains:—Hind's engine-shaft, to sink below the 182, by nine men, at 30s. per fathom. The strength and character of the lode, with the beautiful strata to the north and south of it, make it desirable that this shaft should be sunk with all speed, as it is evident as depth is reached an improved lode will be met with; for this purpose we have set the hole lift at the above price. The 182 end, to drive east, by six men, at 6s. per fathom; the lode is 4 ft. wide, and is likely shortly to improve. The 182, to drive west, by six men, at 6s. per fathom; lode 4 ft. wide, of the end, and producing a little tin, but not enough to value. The 172, to drive west, by four men, at 4s. per fathom; the lode in this end has a fine appearance, and worth full 22s. per fathom. Three stopes in the back of this level stopping at 3s. per ton on an average, and worth 16s., 18s., and 20s. respectively. The 172 end, east of Hind's is for the present suspended, the object being to put up a rise and communicate with the 160. The lode in the end maintains its size and value, still worth 12s. per fathom. The stop in the back of this level working at 3s. per ton, and worth 12s. per fathom for tin. The stop in the back of the 160, east of Hind's, we are pleased to say, is improved in appearance, and opening up exceedingly well; stopping at 4s. 3d. per ton, and worth 13s. per fathom. 15 pitches were also set on tribute, at prices varying from 9s. to 13s. 4d. in 17. We are pushing on the surface work with all speed. All the machinery on the mine is working well.

YEOLAND CONSOLS.—J

will be resumed at the next meeting. The reports from West Devon Great Consols continue to be encouraging, but there is nothing at present to call for special remark. A discovery may, however, be made when last expected (as at Devon Consols), and then it would be difficult to obtain shares at anything like present quotations. The shares are, however, a very promising speculation, and we recommend an immediate purchase. South Penstruthal should not escape the attention of investors. It is true that the calls are somewhat heavy, but we believe that shareholders will by-and-by be rewarded for their patience and perseverance. Of the higher-priced tin shares we look forward to Wheal Agar being 40s., and the mine giving good dividends. In foreign mines Organos Gold shares have risen to 4s. The rise has induced a few sales, but the number of shares into which the mine is divided being small the price is generally firm. We hear that it is intended to introduce another mine in the same district on the success of Organos. Indian gold shares remain dull, notwithstanding the apparently favourable meeting of the Indian Phoenix Company. We hope for the sake of investors that Indian mining will prove successful, but we fear that the majority, if not all, of the existing companies will be failures. Nouveau Monde shares are we think worth buying pending the reconstruction of the company.

9, Old Broad-street, London, Aug. 11. ALFRED E. COOKE.

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The Mining Market: Prices of Metals, Ores, &c.

IRON.				TIN.			
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100	100	100	100	100	100	100	100

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 1X 6s. per box more than 10 quoted above, and add 6s. for each X. Tern-plates 2s. per box below tin-plates of similar brands.

REMARKS.—There is scarcely any variation to report in the general state of the metal market. Business, taken on the whole, keeps tolerably good, and although not brisk, and also notwithstanding that it has been somewhat impeded this week by the holiday season, yet apparently quite an average number of transactions are carried through, and the tone may probably in some measure be strengthened by the Board of Trade returns for July being in the main satisfactory. Complaints do not abound so much as to the actual amount of business that is doing; this, as statistics and other trade returns testify, is gradually on the increase as time progresses, and will probably in the future, as in the past, continue to augment; but where dissatisfaction exists is in the profits realised upon the several transactions compared with former times. Prices for the most part are said to be too low to leave an adequate return to manufacturers and producers, and commissions are cut too fine to enable the middlemen to obtain reasonable profits. Hence it is clear that a great increase in business has to be made to allow of equal profits with those in times gone by. Again, competition is now so keen that orders are difficult to secure, and instead of being concentrated in the hands of a limited number of sellers as heretofore, they are now widely spread throughout the whole trade. People are apt to look merely at their own books, and to take them as a sample of the real state of the trade; but the foregoing remarks will be sufficient to prove that a far greater field ought to be studied to ascertain what is actually doing. The Board of Trade returns and the deliveries are the principal items which should be taken into consideration; and as these of late have invariably shown an increase, there it reason to be satisfied with the business done in the past; and, as we have on former occasions pointed out, surrounding events promise well for the future trade. For instance, a short time back the chances of reaping a good harvest in this country appeared very remote, but with the seasonable change in the weather a far better harvest is expected than was at first anticipated, and an increased trade is looked for as a natural result therefrom. Again the harvest in America is still reported as bountiful, and as the Board of Trade Returns for last month show that no particular increase has been made

in the exports to that particular country, except, perhaps, of tin-plates, there certainly seems room for more activity in the future American demand. Further than this, the crops in many other parts are well spoken of; and, although the state of trade is not solely dependent upon the condition of the harvests, yet they form a very great influence, and since the crops this year bid well to be very fair, if not plentiful, a great impetus may be given to the markets, and an extra amount of business transacted to meet the bona fide requirements of the trade. Certainly there are many persons who hold this view, and in anticipation of prices advancing in consequence, there are many operators who are very desirous to make purchases, fully believing that ere long they will be enabled to sell, and turn their investments to a profitable account. Therefore, a very fair business is doing for speculation, as well as for the legitimate wants of the trade.

COPPER.—This week there has been very little business doing in copper, and while prices have for the most part remained fairly steady, the tendency has been towards lower rates, and while some holders have not been disposed to make some trifling concessions in price, yet the majority of sellers will not make any great reduction in their quotations, thus showing that although sellers are not unwilling at times to effect sales at a trifle under the official market rates, yet they prefer to hold on rather than to submit to heavy sacrifices. Some useful statistics have been published this week, showing the principal productions of copper in 1881 to have amounted to 143,558 tons, against 135,934 tons in 1880, and 135,103 tons in 1879. These are the estimated totals, the figures taken into account from exports from the country, and the figures taken into account from the Australian figures representing the imports into Europe of that particular kind of copper. The special points to be noticed in the statistics are a large decrease in the production of Chilean produce in 1881, compared with the two previous years, and a heavy increase in the production in the United States. The production of Spanish copper has likewise greatly increased, as also New Quebrada, but others show little alteration, leaving the total for 1881, as we have already seen, much in excess of the two previous years. In manufactured there is no new feature to report, the amount of business that is being carried through just now is rather limited, but prices remain fairly steady, and manufacturers do not appear particularly desirous to solicit orders, unless full prices are paid. There is not very much doing with India, and the advance in freights to that country may possibly form some check to the demand.

IRON.—This market remains steady, the tone being somewhat strong, while a very fair amount of business is being carried through. The want of a good American demand is rather a drawback to the market at the present time, and any recovery that might be made in the enquiry from that country would be an immense boon to the trade just now, and greatly help any advance being effected in prices. However, notwithstanding that the Board of Trade Returns do not manifest any increase in the exports to that country, yet to other parts they are better, and the total exports compare favourably with those for the corresponding period of last year, and this naturally tends to implant greater tone to the market, for it is an evidence that a very fair business is doing for shipment. In fact, the whole state of the trade is said to be satisfactory, and from the various manufacturing centres the condition of the trade is reported as promising, with a tolerably good business being transacted from day to day. Manufacturers all round appear confident of realising improved rates very shortly, and in consequence are now for the most part very firm in their quotations, although up to the present no material alteration has been made in the prices that are being quoted. There are many favourable features prominent in this market, and which make sellers reluctant to make any concessions in price, for in addition to the improved Board of Trade Returns stocks of pig-iron are also said to be on the decline, and the following returns from the several producing parts testify with what confidence sellers hold of soon realising more profitable prices; and, further, many of the works are said to be very well off for orders, which enable them to give fairly regular employment.

There was no warrant market at Glasgow on Monday, and the opening price on Tuesday was 50s. 6d., from which point it steadily advanced to 51s. 1d., being at the close somewhat easier again. On Wednesday 51s. 3d. was touched, and business then done down to 51s. 1d. Yesterday the market was again rather stronger, and 51s. 3d. was quoted, the market closing to-day at 50s. 11d. The shipments last week were 13,579 tons, against 12,669 tons for the same week of last year, or an increase of 910 tons, and which makes the total shipments for the whole of this year 379,091 tons, against 335,986 tons for the similar period of last year, and 438,254 tons for the same time of 1880. The number of furnaces in blast has been increased to 110, but the stock in Glasgow stores has been further reduced by 980 tons, now amounting to 632,465 tons, against 633,445 tons last week. The imports of Middlebrough pig iron into Grangemouth last week were 325 tons, against 478 tons for the week of last year, or a decrease of 153 tons, and which leaves a total decrease for the whole of this year, compared with last, of 46,254 tons.

Owing to the holiday season there was not much business doing on the Middlebrough market, but at the same time prices are well maintained and remain pretty firm, with second-hand sellers offering No. 3 at 44s. 3d., and buyers prevail at 3d. less, makers' price being 44s. Warrants are held for 44s., but quotations all round must be considered nominal, as so little business has been transacted. The stock in Messrs. Connal and Co.'s yards show a further decrease for the week of 1200 tons, now amounting to only 117,723 tons. The shipments of pig last week were very good, being over 22,000 tons. In the manufactured trade there is hardly any change, prices keeping steady at 6s. 2s. 6d. for common bars, and 6s. 5s. for angles, while ship plates are offering at 6s. 15s. per ton. The Wolverhampton market has not undergone very much alteration, and for manufactured the demand is said to be well maintained, and the works keep busily occupied. For galvanised iron an active enquiry is said to exist, and the general quotation is 14s. 10s. to 15s. per ton. Sheets remain strong at 8s. 15s. to 9s. for doubles, and 10s. to 10s. 7s. for lattens.

A moderate business is doing in hoops and bars without change in price, and pigs are quiet, although Leicestershire qualities have been advanced 2s. 6d., making the present price 50s., while hematites rule at 62s. 6d. to 65s. Except for galvanised iron, which is in very active demand, the enquiry for other descriptions of iron on the Birmingham market is said to be rather dull, but prices, although for the most part remaining stationary, nevertheless keep firm for all descriptions. There is very little alteration in the state of the trade at Sheffield, prices remaining steady, but some of the works are said to be not very briskly occupied with the orders in hand. In the Welsh districts a satisfactory demand is said to exist, and the stock of iron keeps without much change. The wages dispute seems to be gradually being disposed of. According to advices from New York of the 4th inst. the American demand for Scotch pigs continues good, and prices remain firm at 26s. for No. 1 Gartsherrie, and 24s. 5s. for No. 1 Glangarnock. The price for Coltness is 28s. 5s. and Eglinton rules at 22s. Scrap remains unchanged, but sellers of old rails have not been able to maintain their market, and prices have receded. Hematites and Cleveland pigs, however, are rather dearer.

TIN.—This market keeps extremely sensitive, and the variations in prices are often considerable. It is quite impossible to foresee from day to day what will be the ensuing course of prices. Prices are regulated entirely by speculators, and a great struggle is going on between operators for the rise and those for the fall, and, consequently, the actual state of the market has but little influence upon prevailing prices. Nevertheless, the continuance of light supplies, of good deliveries, and reduced stocks, must produce some ultimate effect of a favourable nature, providing, of course, these features continue. The prices ruling here, being so much below those quoted at the centres of production, tend to give considerable tone to the market, and while such is the case there certainly does not seem to be much chance of supplies increasing. Again, there is not much likelihood of demand being cut off, as, as needs be, the market keeps up, or, at least, statistics to testify to the growing requirements of the trade. It has been long seen that the advancing prices do not interfere to any extent with consumption, and therefore, an account of the high rates ruling, there does not seem to be any reason to fear that deliveries will be in any way reduced.

SPELTER has been steady, at 17s. to 17s. 2s. 6d. for ordinaries.

LEAD steady, at 14s. 2s. 6d. to 14s. 5s. for Spanish, and 14s. 10s. to 14s. 15s. for English.

STEEL remains without change.

TIN-PLATES.—A fair business is doing, and prices keep firm.

QUICKSILVER is without change. The Board of Trade Returns just issued disclose the exports for July to have been only 2808, against 4954 bottles in the preceding month of June, but the progress, on the whole, is so far satisfactory. The figures are for the seven months ending July 31:—

	1880	1881	1882.
Imports	43,759	45,816	41,900 bottles.
Exports	8,943	12,756	21,415 "

The MINING SHARE MARKET continues quiet; the holidays have somewhat interfered with business, very little of which has been transacted since our last, and quotations are merely nominal. The mines dealt in have included Bedford United, Wheal Crebor, Wheal Agar, Leadhills, West Kitty, East Blue Hills, Parys Copper, Tankerville, Roman Gravels, North Blue Hills, and a few others.

TIN was rather weak during the early part of the week, but somewhat improved on Thursday. No alteration, however, has taken place in the standards for ore, and shares have been weak, and little dealt in. Blue Hills, 1 to 1 1/4; Cook's Kitchen, 38 to 39; Carn Brea, 11 1/2 to 12 1/2; Dolcoath, 7 1/2 to 7 3/4; East Pool, 5 1/2 to 5 3/4; Killifreth, 5 1/2 to 6 1/4; East Blue Hills, 9s. to 11s.; New Kitty, 2 1/2 to 3; South Frances, 12 to 13; Tincroft, 11 1/2 to 12 1/2; West Basset, 10 to 11; West Pever, 13 to 14; Wheal Agar, 17 1/2 to 18 1/2; Wheal Basset, 9 1/2 to 10.

South Condurow, 8 1/2 to 8 3/4; at the meeting the accounts showed—tin sales, 134 tons 18 cwt., 8118l. 0s. 7d.; costs for four months, 6271l. 14s. 9d.; profit, 1846l. 5s. 10d., to which was added balance of former account, 2250l. 0s. 7d., making a credit of 4096l. 6s. 5d. A dividend of 6s. per share (1836l. 18s.) was declared, leaving 2259l. 8s. 5d. in hand. Wheel Grenville, 10 to 11; Wheal Jane, 4 1/2 to 5; Wheal Jewell, 4 1/2 to 5; Wheal Kitty (St. Agnes), 1 1/2 to 1 3/4; Wheal Pever, 8 to 8 1/2. Wheal Unys have improved, and advanced to 4 1/2. West Frances, 7 1/2 to 8 1/4; at the meeting the accounts showed a loss of 2238l. on four months' working, and a debit balance of 8052l.; a call of 1 1/2 s. per share was made. The tin sold, 47 tons, realised 2623l. At Wheal Prussia and Cardew the accounts for five months showed a loss of 3468l., and a debit balance of 3178l. A call of 10s. per share was made. North Blue Hills, 2s. 6d. to 5s.; Drake-walls, 1 1/2 to 2; Kit Hill, 1 1/2 to 2; South Crofty, 1 1/2 to 1 3/4; West

Godolphin, 1 1/2 to 2. West Kitty, 14 to 14 1/2; the 72 east is worth 9l. per fathom. The 60 east, 10l. per fathom. Stopes in back 25l. Stopes in back of 72 lode worth 50l. per fathom. Stopes in back of 60, 25l. per fathom. Trevaunance, 2 1/2 to 2 3/4.

COPPER has been pretty firm during the week, but without any material change in quotations. Shares, as a rule, have been dull and little dealt in. Bedford United have improved to 2 1/2 to 2 3/4; Carnarvon, 7s. 6d. to 10s.; Devon Great Consols, 5 1/2 to 5 3/4; Devon United, 4 1/2 to 5; Gunnislake (Clitters), 2 1/2 to 3 1/4; Mellanear, 4 1/

South Devon United, $\frac{1}{2}$ to $\frac{1}{4}$; as will be seen by the agent's report, the 110 fm. level in driving north has been extended about 2 fms., cutting the south part of the lode, and showing some good stones of copper. The other parts of the mine are looking well, and the sinking of Martin's shaft is being pushed forward.

Drakewalls, $\frac{1}{2}$ to $\frac{1}{4}$; the slip in the old ground will not interfere with the deep adit, the tinstuff being drawn up for the next few days through the engine shaft, so as to keep the stamps at work. The deep adit driving west of engine-shaft is being pushed forward to connect with the end of same level east of Brenton's shaft.

West Wheel Seton, 19 to 20; the mine is reported to be looking well, and the adventurers are sanguine as to its future.

Monna, $\frac{1}{2}$ to $\frac{1}{4}$: The usual monthly report just issued is considered satisfactory. The various parts of the mine are improving.

Michipicoten, $\frac{1}{2}$ to $\frac{1}{4}$: The reports from the mine continue satisfactory. The agent in Canada advises that he has forwarded a specimen of native copper just broken weighing 60 lbs.

Richmond, $\frac{1}{2}$ to $\frac{1}{4}$; the usual telegram from the mines states that the week's run was \$22,000 from 473 tons of ore, with one furnace. During the week the refinery produced 600 bars to the value of \$25,000. The telegram adds that they have sunk few (?) feet in ore below seventh; rise from ninth improving. The superintendent's weekly report describes the progress made up to July 16.

Ruby and Dunderberg, $\frac{1}{2}$ to $\frac{1}{4}$; new, $\frac{1}{2}$ to $\frac{1}{4}$ prem.; the weekly report again advises good progress in sinking the main shaft. The No. 8 ore body, above the 700 ft. level, was improving again, and stopping had commenced on this body. No. 8 section, in the 700 ft. level, was not working quite so well. A parcel of 69 tons of ore was at the Richmond furnaces ready for smelting.

Eureka (Nevada) Silver, $\frac{1}{2}$ to $\frac{1}{4}$; the report from the mines this week is rather more satisfactory, a small seam of good ore having been struck; drifting is being carried on in this seam, and the ore is said to be improving as progress is made on it.

The Flagstaff District Silver Mining Company have received a telegram reporting further sales of ore: 40 tons first-class ore at \$42 per ton, and 40 tons of iron ore at \$12 per ton, an increase of \$5 per ton in the price of the latter on previous sales.

The Kohinoor Donaldson Silver and Gold Company have this week received advices from the mine stating that the new hoisting machinery is in full operation, and giving every satisfaction. The second level (200) is being run from the shaft. Work is being actively pushed in Nos. 1, 2, 3, and 4 levels. The superintendent has not forwarded his measurements this week, in consequence of death in his family. These will be published next week. The lode in the No. 4 level continues as strong as stated in the last report. Another shipment of ore has been made to the smelting-works, and also to the concentrating works, and work generally is regularly proceeding at the mine. Specimens of ore from the various levels now in operation have been received in London.

The California Gold Mining Company have this week received letters from the manager at the mine confirming the recent telegrams which have been published, and stating that the new machinery is giving entire satisfaction. It is expected that the mine will be cleared of water by the end of next week, when milling operations will be resumed. The superintendent reports that the powerful hoisting machinery is giving the greatest satisfaction, and is working very smoothly. While awaiting the starting of the mill ore is being raised from the various levels now in operation, so that the mill can be kept steadily at work after it is started.

Birdseye Creek, $\frac{1}{2}$ to $\frac{1}{4}$: The clean up for June and July has been partially made, the result so far being a return of \$24,500, and a remittance of \$8000.

Sentein, $\frac{1}{2}$ to $\frac{1}{4}$; an improvement in the quality of the ore raised is reported, which upon a large output is of considerable importance.

Hornachos, 10 to 10 $\frac{1}{2}$; the secretary, in forwarding this closing price for the present week, writes: Be good enough to correct an error which appeared in last week's Journal relative to the 50 shares offered last week at the Stock and Share Auction Company's sale. These were bought in at 5 $\frac{1}{2}$, and consequently not sold at that price, as stated.

Potosi, $\frac{1}{2}$ to $\frac{1}{4}$; the directors have received telegram: 1001 to 1025 tons quartz raised, 751 to 775 tons quartz milled, 501 to 525 ozs. of gold remitted, quartz showing $\frac{3}{4}$ ozs. per ton. Nineteen days' full work: ore improving.

In Lead Mine Shares there has been considerably more doing, and as the price of the metal is steadily improving a better feeling generally is manifest. It is anticipated that should the present course of the lead trade continue shares in mines producing that metal will have a period of great activity. Van, $\frac{1}{2}$ to $\frac{1}{4}$; the bottom level is looking much better, also the new lode at Van Hill.

Minera, 8 to 10; a dividend of 1s. per share, making 4s. per share for the year, will be declared at the meeting on Friday next. At Meadow shaft the 290, driving west on the north vein, is worth $\frac{1}{2}$ ton of lead ore per fathom; a sump below this level is worth 4 tons of lead ore and 2 tons of blende per fathom. At Roy's shaft the 315, both east and west, on the main vein is worth 3 tons of blende per fathom; the 315 yard cross-cut will soon reach the north vein; the 270 east and west on the south vein will average 3 tons of blende per fathom. Taylor's Shaft: The 270 driving west through a regular strata of mountain limestone, but as yet no signs of the vein are apparent, but in a sump 80 yards in advance the vein is worth 10 tons of blende per fathom, so that a great improvement is daily expected. The tribute workings are vigorously prosecuted, and from all of them small profits are being made, but with a better price for lead ore better profits will be made.

The Great International Fisheries Exhibition, London, 1883, in which many Cornishmen and Canadians, readers of the *Mining Journal*, will be interested, has issued its second revised edition of the prospectus, which will be forwarded to those interested on application to the Secretary of the Executive Committee. This committee has been strengthened by the addition of Sir F. P. Candlish-Owen. Applications for space must be made before Nov. 1.

The Gold Coast Mining Company circular prepared for issue to the shareholders to-morrow (Saturday), contains advices from Mr. L. F. Gowan, dated Abbotvayakoon, June 20. He says—On Sunday evening I reached here from Axim, accompanied by Evans, the engine-fitter. He commenced work yesterday morning, and I think from what little I have seen of him that he will prove of great service. I have stopped the work in the mine, for I consider that we have now sufficient ground opened and proved in that portion of the lode, for we have from 1500 to 2000 tons of ore at grass, and hundreds of tons ready for stamping out, and all payable stone. The writer adds that he has put the men to open upon the same rich lode further north until they may be required for extracting additional ore for the stamping machinery then being erected.

INSURANCE SHARES have, according to this evening's report of Messrs. W. L. Webb and Co., of the Stock Exchange and Finch-lane, been dealt in as follows:—Alliance British and Foreign, 36 to 36 $\frac{1}{2}$; City of London Fire (Limited), 1 $\frac{1}{2}$ to 1 $\frac{3}{4}$; ditto Marine Corporation (Limited), 1 $\frac{1}{2}$; Commercial Union, 21 $\frac{1}{2}$; Employers' Liability Assurance Corporation (Limited), 2 $\frac{1}{2}$ to 2 $\frac{3}{4}$; Fire Insurance Association (Limited), 3; Guardian, 68 to 68 $\frac{1}{2}$; Imperial Life, 21 $\frac{1}{2}$ to 22; Indemnity Marine, 17 $\frac{1}{2}$; London and Provincial Marine (Limited), 5; London, 60 $\frac{1}{2}$; North British and Mercantile, 57 $\frac{1}{2}$; Rock Life, 6 $\frac{1}{2}$; Standard Fire Office (Limited), 1 $\frac{1}{2}$; Universal Marine, 7.

GAS SHARES.—The principal business in these shares, according to this evening's report of Messrs. W. L. Webb and Co., of the Stock Exchange and Finch-lane, has been:—Continental Union (Limited), 25 $\frac{1}{2}$; European (Limited), 19 $\frac{1}{2}$; Gas Light and Coke, A (ordinary), 17 $\frac{1}{2}$ to 17 $\frac{3}{4}$; ditto C (pref.), 22 $\frac{1}{2}$ to 23; ditto H, 7 per cent. max., 134 to 136; ditto 4 per cent. Debenture Stock, 103 $\frac{1}{2}$ to 104 $\frac{1}{2}$; Imperial Continental, 192 to 194 $\frac{1}{2}$; Metropolitan of Melbourne 6 per cent. Debentures, 104 $\frac{1}{2}$; Para (Limited), 25 $\frac{1}{2}$; Rio de Janeiro (Limited), 25 $\frac{1}{2}$ to 26 $\frac{1}{2}$; South Metropolitan, A, 207 $\frac{1}{2}$; ditto B, 180 $\frac{1}{2}$ to 181.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr. W. Abbott, of Tokenhouse-yard, are given in tabular form in the last page of the Journal.

RAILWAY AND GENERAL MARKETS.—Referring to the course of business done to-day during official hours (11 to 3) Mr. Ferdinand R. Kirk, Birch-lane, writes:—Opening: Caledonian Railway stock is changing hands at 104; first thing yesterday only 102 $\frac{1}{2}$ could be got, and 101 $\frac{1}{2}$ the day previous. Unified are rather neglected, at 53 $\frac{1}{2}$. North British are $\frac{1}{4}$ better. Consols are $\frac{1}{4}$ lower. There is not as yet any very brisk market for mining shares, but orders appear to be mainly for buying now, and there is not so much selling. Bratsbergers are required for at 1 $\frac{1}{2}$, and Prince of Wales at $\frac{3}{4}$. Organo continues steady, now quoted 4 to 4 $\frac{1}{2}$.—Closing: To-morrow is the last day of a long account (13 days), and the tendency is rather to take profits than make fresh purchases. Scotch lines have been actively dealt in at higher prices, and Spanish are $\frac{1}{4}$ to $\frac{1}{2}$ better. Unified comparatively neglected. Wheal Crebor, 2 $\frac{1}{2}$ to 2 $\frac{3}{4}$; West Polbreon, 1 to 1 $\frac{1}{2}$; West Kitty, 14 to 14 $\frac{1}{2}$; Bedford United, 24 to 25.

COPPER AND TIN.—Messrs. RICHARDS and BUDD (Aug. 10) write:—The total stocks in Europe and Africa on Aug. 1 were 48,880 tons, against 49,614 tons at a corresponding date last year. The total deliveries of Chili and Australian copper out of public stocks Swansea, Liverpool, London, and Havre were—in May, 10,258 tons; in June, 6180 tons; and in July, 8633 tons. The delivery of foreign tin out of warehouse was 12,530 tons during first seven months of the present year, against 12,945 tons in the corresponding period of 1881, and 11,700 tons in the first seven months of 1880.

COPPER AND TIN.—Messrs. FRY, JAMES, and Co. (Aug. 10) write:—The

market for copper has been characterised by great dullness, there appearing no desire on the part of either buyers or sellers to operate, and prices have given way about 10s. to 15s. per ton. In tin there has been a considerable fall since our last, from no apparent cause except the persistent selling of one or two large operators. The market closed yesterday with rather a firmer tone at 102s.

Mr. George Whiffin, the official liquidator of the Indian Mammoth Gold Mines, announces the payment to creditors of a first dividend of 15s. in 1 $\frac{1}{2}$. Mr. Justice Chitty has appointed Mr. George Chandler, official liquidator of the West Frontino and Bolivia Gold Mining Company.

VAN RAILWAY.—At the meeting of shareholders held at the offices of the company, Dashwood House, New Broad-street, on Thursday (Mr. A. R. Boughton-Knight in the chair), the directors' report and accounts were taken as read, and adopted. A dividend at the rate of 1 $\frac{1}{2}$ per cent. per annum, free of income tax, was declared; and the Marquis of Londonderry and Mr. David Davies, M.P., re-elected directors. The election of Mr. Stephen Catterson, as auditor, in the room of Mr. H. J. Whaley, deceased, was confirmed.

KOHINOOR SILVER MINING COMPANY.—The reports received in respect to the developments of the Donaldson Mine continue favourable. A rich body of ore has been discovered in No. 4 level, which greatly adds to the reserves of the mine, as a continuous orebody is now proved between the No. 2 and No. 4 levels, in addition to that already discovered. It is stated that since the annual meeting of the company there has been an active demand for the shares, and that a large number has changed hands.

BRATSBERG.—We are pleased to state that the cargo of ore lately received, per the Mary Owen, has realised 13 $\frac{1}{2}$ 17s. per ton, which is almost exactly what it was estimated at. The Via has arrived with another 200 tons. From the manager's monthly report, received this week, the mines continue to open out exceedingly well.

PHENIX UNITED.—The Factories and Workshops Act has been causing some ill feeling at these and other mines where the females and lads under 18 employed at surface were kept working until 4-30 instead of 2 o'clock on Saturday. The result was a strike. The boys and girls have, therefore, been required to work the 10 hours per day as authorised by the Act (instead of 9 $\frac{1}{2}$ hours per day as they have hitherto worked), so that they can now cease working on Saturday at 2 without any difference in number of hours of labour or in the cost to the adventurers.

UNITED VAN AND GLYN.—Great improvement is reported to have been made at two points in these mines since Wednesday last—in the intermediate level on south part of lode, and in the level opening east of No. 1 stope above the 40—from which favourable results are anticipated.

BEDFORD UNITED.—An improvement in the 103, on the north lode, is a new feature in this mine, and may lead to something more promising. At the Bridge lode there is no change of importance, but the two stopes in the back of the 30 are producing more ore, and the winze sinking below is going down in a good bunch of ore. The aggregate value of the lode is 95 $\frac{1}{2}$ per fathom, which will tell upon the monthly samplings, and as a large quantity of mundie is also being returned, the financial position of the mine is most satisfactory. All liabilities have been discharged, and a good cash balance remains in hand to provide for any extraordinary outlay should it be required, but at present there is no probability of any further charge beyond the current monthly cost, which is more than met by the returns.

EAST ROMAN GRAVELS.—This mine has improved in the past week.

PERRAN SILVER-LEAD CONSOLS.—On July 27 we drew attention to the improving prospects at the Phoenix portion of the property, now 68 fathoms deep, and then producing 25 cwt. of rich silver-lead per fathom. On Thursday the agent's weekly report estimated the value at 2 tons per fathom, at the same time reporting that the lode was quite clear of the gossan and $\frac{1}{2}$ feet wide. A telegram has this day been received by the board reporting the lode to be producing 2 $\frac{1}{2}$ tons per fathom. An air-compressor and Eclipse rock drills have been ordered from Messrs. Hathorn and Co. and will be erected with all possible speed. A strong impression exists that a second West Chiverton is being opened up. The shares are quoted $\frac{1}{2}$ prem., 1 $\frac{1}{2}$ paid.

GREAT HOLWAY.—Great improvement is taking place at No. 5 pitch level engine-shaft. Since issue of report, published this day, the yield has increased to fully 4 tons of lead per fathom.

TERMINATION OF MINERS' STRIKES.—THE BRANCEPETH COLLIERY STRIKE.—The agents of the Durham Miners' Association met the deputation of the workmen at Willington, on Thursday. The reports from all the five collieries were in favour of resuming work at once, the men to pay the cost of the 500 summonses taken out, together with the nominal sum claimed by the owners. The scale price of working the jet seam to be settled by arbitration. The owners assented to this settlement, and the men agreed to resume work this morning, the off-handed men resuming at once. The strike has thus concluded.—THE STRIKE AT RUABON.—The miners at the Ruabon Colliery, one of the most extensive in North Wales, who struck work at the beginning of the week owing to coal-owners stacking the coal, resumed labour yesterday morning. While trade is slack they have resolved to work only three days per week, so that the employers will be unable to accumulate coal stocks. This will not average more than 10s. per week for miners' wages.

THE WORLD'S PRODUCTION OF LEAD IN 1881.—Herr Landsberg, the general manager of the famous Stolberg Company, has in an annual report to his company, given an estimate of the production of lead in Europe for 1881. The following is Herr Landsberg's estimate for Europe:—Spain, 120,000 metric tons; Germany, 90,000; England, 60,000; France, 15,000; Italy, 10,000; Greece, 9,000; Belgium, 8,000; Austria, 6,000; Russia, 15,000; total, 328,500. Herr Landsberg estimates the production of the United States at 110,000 tons. As the output of Mexico, South America, Canada, and Australia is small, it is probably safe to assume that the world's production is about 449,000 tons of lead. This does not include China, which is a heavy consumer of lead, and is not unlikely a producer of some importance; nor does it include Japan, of whose output we have no figures. It will be seen, therefore, that the United States take second rank among the lead-producing countries of the world.—*Iron Age*.

THE VICTORINE.—C. Guinness, and Percy Morgan, of the Victorine Mining Company, came in from Kingston to-day. They report everything going along finely at the mine and mill. There was a clean-up yesterday at the mill from a three day's run, resulting in 120 ozs. of amalgam. The previous clean-up resulted in 100 ozs. The greater part being gold, the returns thus far, from the experimental workings of the mill, have been satisfactory beyond expectation. This amalgam has been taken from the amalgamating plates of the battery, the balance of the precious metals being in the concentrations saved by the blanket sluice process. There is a large amount of these saved for future reference. The Frue concentrator will also shortly be brought into service in this matter. A competent retort is on its way from San Francisco to retort the accumulating amalgam, and when Dawley gets back from the bay the Frue concentrator will be brought into use and the other 20 stamps of the mill started up, only 10 stamps having been worked heretofore. Altogether the realisations and prospects of the Victorine under the new management are very encouraging and satisfactory.—*Austin Reville*, July 7.

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75 Colorado, 25 Hington Down, 150 Rhodes Reef,
50 Colorado, 100 Indian Consolidated, 50 South Devon,
100 Carn Camborne, 50 Indian Phoenix, 50 South Penstruthal,
100 Devon Friendship, 100 Javali, 20 South Tolcarne,
100 Don Pedro, 30 Kit Hill, 50 Tolima A.,
70 Drakewalls, 20 Lead Hills, 50 United Mexican,
100 Eberhardt, 20 Lead Hills, 50 West Kitty,
85 East Blue Hills, 100 Langford, 40 West Polbreon,
50 East Caradon, 20 New Kitty, 40 West Godolphin,
10 Frongoch, 20 Organo, 50 West Crebor,
50 Gawton, 20 Penhalla, 100 Wheal Coates,
60 Glenroy, 100 Prince of Wales, 100 Wheal Jewell,
100 Gold Coast, 150 Port Phillip, 20 Wheal Uny.

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SOUND MINING INVESTMENT, with GRAND SPECULATIVE REVERSION. Bonds amply secured to pay 8 per cent. by half-yearly coupons. Bonus in fully paid shares, which may be worth 2000 per cent. within 1 months. A few only available. Cash required.

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FOR SALE, the PATENT RIGHTS of a recently-invented
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WANTED, a PAIR of COMPOUND HORIZONTAL ENGINES
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WANTED, a PORTABLE ENGINE of about 12-horse power,
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PLANING MACHINE, some WAGONS, small Section METALS.
Apply, stating prices, to the Secretary, West Leigh Slate and Slab
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Full particulars from Mr. THOMAS, Post Office, Roche, St. Austell.

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Son of Capt. A. T. JAMES, late of South Frances, and other mines.
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OFFERS FOR SALE, all or part, of the following shares free of commission:—
20 Arenal, 60 Glenroy, 46 South Devon,
50 Bedford, 20 Grogwinion, 50 South Frances,
20 Blue Hills, 35 Gunnislake (Clitters), 100 South Penstruthal,
50 Bratsberg, 20 Herodfoot, 30 Tamar,
75 Camborne Vein, 25 Hington Down, 100 Tankerville,
10 Carn Brea, 20 Killifreth, 10 Tincroft,
5 Cook's Kitchen, 25 Kit Hill, 7s. 6d., 20 Tin Hill,
20 Coftacool, 100 Langford, 10 West Bassel,
100 Coates, 100 Morla Du, 10 West Frances,
50 Devon Gl. Uni., 7s. 6d., 100 Mounts Bay, 20 West Kitty,
100 Devon Friendship, 200 Mysore Reef, 35 West Devon,
100 D'Eresby Mountain, 25 New Kitty, 10 West Peovor,
10 Dolcoath, 50 North Busv, 20 West Polbreon,
30 Drakewalls, 100 Norway Copper, 5 West Seton,
55 East Blue Hills, 50 Old Shepherds, 50 Wheal Agar,
30 East Buller, 500 Old Owlcombe, 15 Wheal Bassel,
30 East Chiverton, 100 Parys Copper, 10 Wheal Grenville,
10 East Pool, 100 Penhalla, 25 Wheal Jane,
100 East Roman Gravels, 50 Phoenix United, 10 Wheal Kitty (St.
4 South Caradon, Agnes),
50 Eberhardt, 25 South Condurrow, 50 Wheal Uny,
20 Frongoch, 100 South Crebor, 25 Wheal Crebor,
50 Gawton, 10 South Crofty, 150 Wheal Sisters.

The present is a favourable opportunity to purchase low priced shares, and I strongly recommend their purchase.

Orders by letter or telegram promptly attended to.

Speculative accounts not opened on any terms whatever.

COPPER ORES.
Sampled July 15, and sold at Tabb's Hotel, Redruth, Aug. 3.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Mellancar...	508	£208 10 0	West Seton	78	£441 5 0
Levant	369	2640 4 6	Moyle's Ore	15	16 10
West Tolgus	171	1358 12 6			

Average standard... £ 98 7 0 | Average produce... 0 3/4
Average price per ton... £ 14
Quantity of ore... 1141 tons | Quantity of fine copper, 95 tons 3 cwt.
Amount of money... £ 6,546 2 0
LAST SALE.—Average standard... £111 2 0 | Average produce... 5 3/4
Standard of corresponding sale last month, £107 7 0 | Produce... 6 1/4

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Name.	Tons.	Amount.
Vivian and Sons	223	£1429 3 6
Nevill, Druce, and Co.	251	1344 13 0
Williams, Foster, and Co.	559 1/2	3239 16 3
Mason and Elkington	107 1/2	462 9 3

Total... 1141... £ 6,546 2 0
Copper ores for sale on Thursday next, at the Royal Hotel, Truro.—Mines and parcels.—Devon Great Consols 53 $\frac{1}{2}$ —Wheal Crebor 54 $\frac{1}{2}$ —South Caradon 37 $\frac{1}{2}$ —South Devon United 31 $\frac{1}{2}$ —Marke Valley 15 $\frac{1}{2}$ —Glasgow—Caradon 16 $\frac{1}{2}$ —Bedford United 94—Holmbush 87—Phanix 42—Mid-Devon 19.—Total 2722 tons.

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SHIPPED DIRECT FROM THE NEW ALMADEN MINE, FOR SALE in any quantity, by the producers. CAR LOAD LOTS will be shipped from San José for NEVADA, ARIZONA, and the EAST, or delivered at Pacific Mail Steamship Company's Wharf, San Francisco, without charge.

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Notices to Correspondents

* * Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

GEOLOGY OF COSTA RICA—"N.N."—The paper on the Geology of a Part of Costa Rica, read before the Geological Society of London, by Mr. George Attwood, A.M.I.C.E., a full abstract of which was published in the Mining Journal of June 17, has just been printed in separate form.

Received—"Argus" (Kapanga)—"U. W."—"A. S." (Lake Superior Copper)—"P. J. S." (Nava de Jadraque, Spain)—"A. R. M."—"H. T."—"J. M. U." (Great Wheel Polgooth)—"Constant Reader" (Bath)—"Amicus" (Dublin)—"One Interested" (Southampton).

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, AUGUST 12, 1882.

THE NEW BOILERS EXPLOSION ACT.

Owners and users of boilers in all parts of the kingdom should be made acquainted with the fact that an Act came into operation on July 12 with respect to boiler explosions. Many explosions have taken place that with ordinary care might have been prevented, thus necessitating greater stringency than has hitherto been the case, and the laying down of certain regulations as preventive measures. This has been done not only in the interests of workmen but in that of the employers of labour as well, for the latter should consider that they run great risks under the Employers' Liability Act if they do not take every known precaution to prevent injury from a boiler exploding. Boilers before being put in motion should undergo a practical examination so as to see that the material is in no way defective either as regards ductility or tensile strength. A good deal also depends upon the rivetting, and it has been found that that done by machine or hydraulic power is far superior to what can be effected by the most skillful workman by hand. Explosions not unfrequently take place owing to a boiler being overworked, for whenever too much fuel is thrown upon the fire the water does not receive the heat sufficiently fast for the plates, which then become almost red-hot, and are weakened to such an extent as to be unable to resist the working pressure. Good water is also very essential in keeping boilers in a safe condition, for internal corrosion has a most serious effect on boilers; external corrosion, on the other hand, is not so dangerous, and can be easily avoided, seeing that it is caused by the water and ashes gradually eating the plates away. But there is another cause for boiler explosions which we have had more than once pointed out to us, and that is the incompetency of the man in charge, for on him more than anything else depends the safety of the boilers placed under his control. Where there are leakages a good man will not be slow to discover them, and when that is not the case then the boiler gets depleted of water, the plates get red-hot, and an explosion is the result. But in all cases there should be a low-water safety-valve with an alarm, so that when the water gets low the man in charge would be apprised of it, and would act accordingly to what was required. There are, however, many ways in which a boiler may explode in addition to those we have enumerated, but it should always be remembered by steam boiler users that a greater amount of safety is insured when the boilers are fed with hot water instead of with cold, and for this purpose GIFFARD'S injector will be found most invaluable, and so also is the exhaust injector which feeds the boiler and raises the temperature of the water to about 190°. Having said so much with respect to the causes of boiler explosions we will now refer to the Boiler Explosion Act of 1882, and to some of its main provisions, and with these all persons having to use steam-power should be conversant. There is, however, we may say, one exception to what we have just stated, and that is with respect to boiler explosions into which an enquiry may be made under the Coal Mines Regulation Act of 1872, or the Metalliferous Mines Act of 1872, or in the case of a steam-vessel having a certificate from the Board of Trade. When an explosion takes place a similar notice to that given when a fatal accident takes place in a mine has to be sent to the Board of Trade within 24 hours after the occurrence in a certain form provided for the purpose.

In the notice sent to the Board of Trade there must be stated the precise locality where the explosion took place, the name of the works, and the postal address, the day and hour of the explosion, the number of persons killed or injured respectively, together with a description of the boiler, the purpose for which it was used, the part which failed, and the extent of the failure or fracture. And in addition to this there has to be stated the pressure at which the boiler was worked, together with the name and address of the association by which the boiler was last inspected or insured. Where the required notice is not given the party liable for the default is subject to a penalty of 50*l*. This part of the Act appears to have been borrowed from the Mines Regulation Act of 1872, as does that relating to an enquiry. It appears when notice of an explosion has been sent to the Board of Trade the latter may order a formal enquiry, or a thorough investigation should such be considered necessary. In either case the party entrusted with the enquiry may enter any building, examine witnesses, and summon them; enforce the production of books, papers, and documents, administer oaths, and require witnesses to make declarations as to the truth of their statements. But the whole of the machinery appears to be more elaborate and complicated, as is the case with respect to mining explosions, which, of course, are far more serious than those that can possibly arise from boilers. In the first place there is to be a preliminary enquiry conducted by either one or two practical engineers, as may be considered necessary, but they are expected to be thoroughly acquainted with all that relates to boilers, their manufacture, working, and power.

After this, on a report being received, a formal court of enquiry is to be constituted, for the purpose of going into all the particulars. This court is to consist of not less than two commissioners, one of whom is to be a practical engineer, thoroughly conversant with all that relates to boilers, their manufacture, and working; and the other is to be a lawyer of some standing, and in full practice. Such a combination it is believed will be a safeguard against the introduction of evidence of a hearsay character, or that which is not strictly legal in the ordinary acceptance of the term. In all cases the Board of Trade has the appointing of the commissioners, and who will have to report to the Board the result of their enquiries, and who have the power to publish such reports. In addition, the court appointed by the Board of Trade has power to order the costs and expenses of a preliminary enquiry or formal investigation, or any portion of either, to be paid by any person summoned before it, or by the Board of Trade. Power is also to be given to the commissioners to pay witnesses for their attendance, and to pay to the persons holding any enquiry or investigation such remuneration as the Board of Trade, with the consent of the Treasury, may consent to.

We are not much in favour of giving too much power to Government officials in connection with trade matters, for they can put persons to great and unnecessary inconvenience in making investigations into what they consider abuses and negligence; but at the same time, as we are told by the highest authorities, that boiler explosions are really preventable, we consider that something more was required in addition to the ordinary law on the subject and the Employers' Liability Act, and we therefore believe that the Act which has just come into operation may be the means of doing a great deal of good if carried out with caution and consideration, and without annoyance to those who may have the misfortune to have a defective boiler.

COAL AND THE IRON TRADE.

It has always been urged and considered that the iron trade is the best support—or, at any rate, one of the best supports—of the coal trade. In the production of pig-iron alone Great Britain consumed last year 18,011,000 tons of coal, or 11 per cent. of the whole British coal production of the year. A further consumption of coal in the manufacture of iron and steel of various kinds absorbed 16,663,000 tons more, so that altogether the metallurgical industry of the country consumed 34,674,000 tons, or nearly 22 per cent. of its whole coal production last year. This was a very important production, but it appears that 10 or 12 years since the corresponding proportion was as high as 30 per cent. But whatever the exact proportion may be the substantial fact remains conclusively established that the British ironmaster is one of the best clients—if not exactly the best client—of the British colliery proprietor. The comparative reduction in the consumption of coal for each ton of iron made in Great Britain is due, no doubt, to improvements effected in the manufacture. Had the consumption continued in 1881 at the same rate as that which prevailed 10 or 12 years previously the British iron trade would have absorbed upwards of 48,000,000 tons of British coal instead of the 34,674,000 tons actually consumed by it. The saving of 11,859,000 tons estimated to have been secured in last year's consumption was largely due to improvements effected in the manufacture of pig, the proportionate reduction in the consumption under that head last year being estimated at 7,121,000 tons. It is expected that in a few years when the utilisation of the lost gases of blast-furnaces and puddling-furnaces has become more general, and when steel made on the GILCHRIST-THOMAS principle has more generally replaced iron a still further proportionate reduction in the consumption of coal will be effected.

This, of course, will be not only an advantage to British ironmasters, but it will be a distinct gain to the country at large, as anything which tends to economise the coal wealth of Great Britain must also assist to prolong its industrial greatness. Nothing can compensate a country the industries of which are mainly dependent upon steam-power for an exhaustion of its coal wealth; and, therefore, anything calculated to economise that coal wealth must be regarded as a matter of the highest importance. It will be interesting to contrast the proportionate coal consumption of the iron manufacture of the seven leading countries of the world. By the expression "proportionate coal consumption" we mean the proportion sustained by the coal consumption of the metallurgical industry of each country to its whole coal production. In Great Britain, as we have already shown, this proportion stood last year at 11 per cent. In Germany the corresponding proportion was 14 per cent.; in the United States, 14 per cent.; in France, 26 per cent.; in Belgium, 7 per cent.; in Russia, 32 per cent.; and in Austria, 19 per cent. It will be seen that the lowest proportion has been obtained in Belgium, but that Great Britain stands very well upon the list, especially having regard to the extent of its metallurgical industry, which is the largest and most important in the world. Of course, the less coal which can be consumed in the production of iron the cheaper the terms and conditions upon which it can be made, and the more cheaply production is effected the more likely it is to grow in importance. Our ironmasters have clearly a strong inducement to proceed still further in the matter of coal economies, and we trust that they will endeavour to do so not merely for private reasons but also upon public grounds.

FORGING OF METAL BRANDS.

That the forging of trade marks is carried out on a far more extensive scale than most people believe is pretty evident, and where one forger has the charge brought home to him it is probable that fifty escape, and are able to carry on the illicit trade to a good profit. In most instances it may be that the forged article does not materially differ from the genuine one, but in others it is different, and the consequences of the substitution of one for the other might be serious. This is particularly the case with iron for certain purposes requiring an amount of tensile strength and strain that is not necessary in every case. If the iron is not of the required quality it may result in the breaking down of machinery, or in the event of being connected with the drawing apparatus at a deep mine might lead to a serious disaster. Therefore, where persons forge a well-known brand, which gives a guarantee as to the high quality of the metal, the punishment should certainly be commensurate with the gravity of the offence, in the event of the charge being conclusively brought home to the offender. This was the view taken by Mr. Justice DAY lately at the Manchester Assizes, when an ironfounder named JOHN PEMBERTON, carrying on business at the Ellesmere Foundry, Manchester, was charged with having forged the trade mark of the Low Moor Iron Company, with intent to defraud, he having represented an inferior quality of iron to be Low Moor. The iron made by the latter is well known at home, and has the highest reputation for strength and tenacity, and for the prevention of fraud the company registered a trade mark, consisting simply of the words "Low Moor." This mark is recognised by the trade, and when the iron is branded with it then it is considered to be genuine. It appears that an engineer in Rochester ordered from a Glasgow firm a cone tube, and the latter gave the order to PEMBERTON, the stipulation being that it should be made of the best Low Moor iron. The tube was made and sent to Rochester, when it was found to have "Low Moor" stamped on the outside, whilst on the inside there was stamped "Tudhoe," with three stars. In fact, the iron was the best Tudhoe, the price of which was 12*l*. per ton, whilst the Low Moor sold at 22*l*. per ton. This certainly looks a wide difference in material apparently similar, but there are, probably, no ironmakers in the kingdom who take the same trouble in producing the finest possible quality metal as the Low Moor Company does. Samples of the refined metal are broken after going through the refining furnaces, and each charge is sorted according to the number of blows it stands without breaking, and none but refined metal is charged into the puddling furnaces. Each man's make of iron is carefully examined, and a number is given to him in accordance with the quality, and the man who gets the lowest number has to remain out of work a week. The puddled balls are hammered into blooms, and these are then piled, re-heated, and again hammered before being rolled off. By these means the iron cannot be excelled, and for high-class work is in great demand, even at the high price charged for it as compared with other iron.

In the case in question, the weight of iron was only 2 cwt., 16 lbs., and the charge made for it 1*l*. 13*s*. And here we may say that it is but seldom we hear of criminal charges like this being preferred under the Merchandise Marks Act, although the second section made it an offence to forge or counterfeit, or cause to be forged or counterfeited, any trade mark which shall denote or be intended to denote the manufacture of any other person, for civil action for damages have usually been resorted to. But we are of opinion that the best way to put a stop to such fraudulent acts on the part of persons who cannot plead that they were not aware they were doing wrong is to treat those guilty of them as criminals, the same as the Low Moor Company did Mr. PEMBERTON, whom the jury found guilty of the offence with which he was charged. The aspect of the case was treated by Mr. Justice DAY in a very strong manner in passing sentence. He said that poor men who were pressed by poverty and yielded to temptation were punished for committing such offences as the prisoner had done, and the prisoner himself

would expect that any person who sought to obtain his money by fraud should be severely dealt with, and he (the Judge) could not make any distinction between one man and another. The offence was a grave one, having regard to the prisoner's own position and having regard to the number of men working under him. The offence was a fraud upon the buyer of the iron, it was a fraud upon the person for whom the iron was intended, and in whose boiler it was to be placed, and upon the honest tradesman carrying on a similar business. The Judge then sentenced him to three months' imprisonment without hard labour. The sentence may appear to be a severe one, but it will have a most salutary and deterrent effect with respect to other persons who are now engaged in similar malpractices not only in the metal trades but in many others as well, and who are willing to run great risks in the making of a little extra profit. Were the interests of trade marks to be dealt with in the same way as the Low Moor Company have acted towards Mr. PEMBERTON, such frauds as are now carried on daily with impunity would soon be all but unknown. But those who are guilty of them feel that if they are discovered they will only have to pay a certain amount of damages; but when they find that there is some probability of their being sent to prison for a few months it would make them pause, and take into consideration the risk they incurred by unfair dealing.

BOILER EXPLOSION AT A MINE—A CAUTION

At the Rochdale County Police Court on Wednesday, Henry Heys, the owner of a stone quarry at Facit, was charged with committing a breach of the Metalliferous Mines Regulation Act of 1872, by employing a youth under 18 years of age as engine-tenter. Mr. C. H. Holden, of Bolton, appeared on behalf of Mr. Joseph Dickinson, Inspector of Mines, to prosecute, and Mr. A. Molesworth defended. Mr. Holden explained to the magistrate that Messrs. Heys and Co. were the owners of a subterranean mine or quarry at Facit, which was worked from the surface by a boiler and engine. They let the stone-getting out to contractors, who employed persons to attend to the engine and boiler. A few weeks one of the boilers exploded, and the youth in charge of it, named Saunders, was killed. The deceased was 16 years of age, and as persons occasionally rode down the engine plane into the mine, he clearly ought not to have been employed, but he thought it had been an oversight on the part of Mr. Heys. Mr. Molesworth stated that the deceased had only been employed three days in charge of the engine, and that at the time it was thought he was over 18 years of age. Mr. R. Hurst, the chairman, said that as Mr. Dickinson did not press for a heavy penalty they would impose a fine of 3*l*. and costs.

This was, perhaps, the first boiler explosion since the passing of the Boiler Explosions Act, 1882. It took place on July 12 (the date of the Act) at the stone mine at the Facit quarries, belonging to Messrs. Henry Heys and Co., when, as stated, the youth who was in charge of the engine lost his life, several others who were near having very narrow escapes. The explosion being in connection with a mine is not comprised by the new Act, but is under the Mining Act, and was investigated under the ordinary course by the Coroner and the Inspector of Mines. At the inquest, which was opened on July 15 and concluded on the 27th, by Mr. J. Molesworth, Coroner, and attended by Mr. Dickinson, Chief Inspector of Mines, it appeared that the boiler was a vertical one, of small dimensions, having a fire-box, with two Galloway tubes, and an uptake through the interior of the shell, the construction being similar to that of about 13 boilers which are worked in these quarries, besides many others in the neighbouring quarries.

The evidence showed that the fittings had been all complete, and that the boiler was adequately constructed for the working pressure of not exceeding 60 lbs. on the square inch. The markings of tarry soot left on the plates of the fire-box, and in the interior of the lower part of the uptake showed that the boiler was not short of water, and the rents in the iron were clean tears, indicating an explosion from over-pressure. At first there appeared some mystery, but this was dispersed, and the evident cause arrived at. A few days before the explosion the roof of the boiler-house got on fire, when the end of some of the spars were burnt off and the ridge-tree nearly burnt through; so that the roof, which was slated with heavy grey slates, such as are worked at the quarries, became bent down until the end of one of the pegs which fastened the slates, rested directly upon the end of the lever of the safety-valve. This was discovered, and the peg removed, leaving about 2 in. between the end of the lever and the slates, where the distance had been originally 6 in. No support was put to the burned spars and roof-tree, and doubtless the subsiding continued until the slates rested upon the lever, and hence, the valve being prevented from acting, such an undue pressure of steam was occasioned as to burst the boiler.

Besides the loss of life, the engine was damaged, and the house in which the boiler stood was blown away. The shell of the boiler, with the uptake and a small piece of the fire-box attached, were blown about 100 yds. in one direction, and the three other parts into which the crown was blown were in the opposite direction, the furthest piece being about 80 yds. from the original seat, whilst the fire-box was merely turned over on the site. Mr. Henry Longridge, of the Boiler Insurance Association, attended at the inquest, and the case was watched by Mr. Brierley, solicitor, Rochdale, on behalf of the relatives of the deceased.

BESSEMER STEEL PROGRESS.

At the present time considerable activity prevails in connection with the manufacture of Bessemer steel in putting down new plant and in increasing the productive power at some of the works, but the places in which it was originally located see the trade gradually but surely going away. Cammell and Co. of the Cyclops Works, Sheffield, are about to commence the erection of mills and buildings at Workington, so as to be near the seaboard, and in Cleveland Blockow and Vaughan have put down additional plant, so that the company promises to be the largest producers in the kingdom, and are now working both by the basic and the ordinary Bessemer process. Sheffield indeed appears to be falling back, whilst South Wales and the North of England are going forward. Staffordshire is about to enter the lists by adopting the Gilchrist-Thomas system, and there is every reason to believe that the other counties in which ordinary ironstone are found in connection with the coal will adopt a similar course. In those districts where the ore and material for smelting can be raised there will be a great advantage over those where only one of them is obtained. It has long been a subject for discussion as to whether it was most economical to bring the ore to the coal where only one of them existed, or *vice versa*, for in either case there is a considerable outlay for carriage. But now that it is not necessary to use the home or Spanish hematites in the making of steel a great change is taking place, caused principally by the successful introduction of the basic process, so that there are several counties that can now work it without any outside aid whatever, having all the necessary requisites on the spot. This is the case for instance in Derbyshire, the West Riding, Shropshire, Gloucestershire, Staffordshire, and some other counties as well. But there are some others like Lincolnshire, Rutland, Oxfordshire, and Northamptonshire in which there is an abundance of ore but no coal, and in these it is not unlikely that steel will be made seeing that the ores are well suited for the purpose, and being near the surface can be worked very cheaply. This to some extent would counterbalance the disadvantage. In fact, Northamptonshire and Lincolnshire are both able to sell their iron as low as those counties where the coal and ore are near to each other, or as is the case in some parts of the West Riding, where the two are got together. In the North of England the coal near to the furnaces is now being drawn upon more than it has been, and we may expect to see local ores in connection with coal more extensively drawn upon in many districts where such is not now the case. The steel competition indeed promises to be severe, so that where the raw material is slow at hand, labour plentiful and moderate in price, there will be the success be the greatest. In both these advantages must also be included transport facilities by railway and sea. Cleveland appears to have most if not all of these

advantages, and the progress made there in the production of Bessemer has been really astonishing if only one year is taken as a guide. Rails, of course, are the principal outcome of the Bessemer manufacture, and of these there were turned out as follows during the last two years:—

	1880.		1881.
South Wales	Tons 258,404	.....	Tons 305,043
Sheffield	151,174	.....	245,469
Lancashire	116,431	.....	135,543
Cumberland	114,096	.....	121,093
Cleveland	92,559	.....	216,004
	732,664		1,023,152

Seeing that Cleveland has only of late gone into the steel rail trade, it will be evident that the progress made has been something extraordinary during last year. But this is not all, for since then more powerful machinery has been put down, including two of the largest converters yet made. They were the work of Messrs. Tannett, Walker, and Co., of Leeds, who appear to have made Bessemer plant a speciality, for there has been a great demand upon the resources by both home and Continental manufacturers. The converters take a charge of 15 tons of steel, and will weigh, when filled up, close upon 80 tons each. The same firm also made a similar pair for the Société des Aciéries, Longwy, and have produced the entire Bessemer plant, including blowing-engines, hydraulic machinery, compound cogging mill engines and converters, for Messrs. Caramin and Foy, of Thy-le-Château, in Belgium, who were amongst the best known iron rail makers on the Continent. Previous to the commencement of the present year the largest converters were only 10 tons, and before that many were of a capacity of from 5 to 8 tons only. But during the last two years large converters have been made for superseding the smaller ones, so that whilst in 1879 the average yield of each was only 12,641 tons, last year it was 17,582 tons. Now, however, the average yields are at the rate of something like 25,000 tons. Towards the close of last year no less than 10 entirely new plants were in course of construction, showing that the steel rail trade is more than usually active, and is looked forward to as being one of the most promising industries of the future. But in addition to rails there is an increasing demand for ingots for other purposes as well, and last year the quantity amounted to about 400,000 tons, and a heavy tonnage in the shape of blooms was exported to America last year. Plates for shipbuilding purposes are now becoming in better demand, although during the present year the make is said to be only at the rate of about 25,000 tons a month. But the second half of the present year will undoubtedly show much better, for a good deal of the Bessemer steel is now being required for armour-clad vessels, and the consumption of late has been particularly heavy. In addition to this Bessemer can be made to stand almost any strain, and for many purposes for which it has not formerly supposed to be suitable it is now extensively used. Eventually manufacturers are taking kindly to it for certain descriptions of work. However it would appear that the greatest amount of progress will be made in the North of England, where the works are close to supply ports, for a large tonnage of the rails made are for exportation. Again, the proximity of Bessemer works to large shipbuilding yards must be greatly in their favour, seeing that the cost for railway carriage for inland districts is a heavy item. So far, however, as regards our home consumption of steel rails Sheffield and other inland districts will be in perhaps a more favourable position for supplying the wants of English railway companies than the North of England. However, there is no mistaking the fact that the Bessemer steel industry is becoming one of the most important in the kingdom, whilst, with a rapidly increasing demand, new works are springing up to meet it, so there will be a healthy competition on all sides which will result in the English makers maintaining their supremacy in all markets.

GREAT WESTERN MARITIME SHIP CANAL.

We have been favoured with advance sheets of a pamphlet giving much valuable information and many interesting details concerning the Great Western Maritime Ship Canal, proposed by Mr. F. A. OWEN, of Hayes, the object of which is to provide a safer and shorter route from the South Wales and Bristol coal fields to London and the various ports of France, east of St. Malo, Belgium, Holland, &c., by forming a new waterway to connect the Bristol Channel with the English Channel. It is believed that not only will the undertaking be of vast importance to the trade of the ports in the Bristol Channel, but that there will be sufficient traffic through the canal to ensure a satisfactory return to those who undertake its construction. It is pointed out that taking Cardiff as the central point the distance from there to Exmouth by sea is 370 miles, whilst by way of the canal it would be reduced to 80 miles, and this 290 miles saving would be of advantage also in shipments to the north of France, Belgium, and Holland. It is added that the direct maritime route would supply the inhabitants of the southern counties with abundant and cheap fuel, an object of national importance which should command public support. This was the strong argument of more than one railway scheme for cheapening the supply of coal to London from the north, the rejection of which in the interest of protection was at the time so severely commented upon by the Metropolitan Press.

That an abundance of coal to supply the canal with traffic is evident from the mere mention of the fact that in the report issued by the Royal Coal Commissioners in 1871 it is stated that the strata of the South Wales and the adjoining coal fields are estimated to contain at practicable depths the enormous quantity of 36,940,179,675 tons. These western coal fields form in fact the largest deposit of the mineral in England, having an area of over 1200 square miles which is comparatively unworked. The products of the Welsh and adjacent collieries is in most respects equal to north country or Yorkshire coal, the smokeless varieties being unquestionably superior to all others, and being cheaper to use for steam and manufacturing purposes will always command the market, and as these coals would be by the suggested route be placed by sea within 355 miles of London, equidistant with the northern coal fields, and of course proportionately nearer to the western and southern counties, there appears no reason why they should not be delivered at greatly reduced rates in those counties, and compete on equal terms even in the Metropolitan area; in short the opening of the canal would cheapen fuel in the whole of the district south of the Thames.

It is proposed that the northern outlet of the canal should be near the village of Stolford, at the south-east angle of Bridgewater Bay, and west of the tidal river Parret. From Stolford the canal would follow a straight level line to Combwich Reach, and the pill or stream which falls into the Parret at this point. Combwich to Bridgewater would be a direct line, and then following the line of the old Bridgewater and Taunton Navigation, now the property of the Great Western Railway, and little used, the canal would reach Taunton. Docks would be formed there and at Bridgewater and other large depôts, to accommodate the through trade and the important local traffic of the district. The remaining section would be parallel with and include the site of the nearly abandoned Grand Western Canal (also absorbed by the railway company) to Wellington and Burslemombe, and there diverging it would take the valleys to Collymore and Exeter via Kellerton Park and Stoke Cannon. Between Wellington and Burslemombe the land gradually rises, and culminates at White Ball Hill in an elevation of 536 ft., which is pierced by the Bristol and Exeter railway tunnel. It is one of the western spurs of the Black Down range, which forms the principal watershed of this part of the country. The old canal makes the circuit of the hill, and Mr. Owen has adopted the same line, and the summit level of the route would be near Grinham Barton, some 350 ft. lower in the adjacent valley, and at this point the deepest cutting would occur. The total length of the canal would be 62 miles, and there would be no locks except at the two ends. The aggregate cost would probably be under 1,000,000, or including harbour works and accessories 1,500,000, but Mr. Owen does not give any estimate until detailed surveys are made.

The new waterway should, Mr. Owen considers, be 125 ft. wide at surface, 55 ft. at bottom, and 21 ft. deep. These are the proportions of the Grand Ship Canal of Holland, from Amsterdam to the Zelder (available for fully loaded vessels of 1000 to 1200 tons), drawing

18 ft.), and would probably be adequate for the requirements of the traffic. Mr. Owen takes the price at 30,000,000 per mile, but this is obviously too high considering the economy now obtainable with rock drills, steam navies, and cheap coal—the canal being practically on the coal field—and considering also the fact that the Grand Canal in Holland cost but 20,000,000 per mile. In practice it will certainly be found that the 1,500,000, already stated would be nearer the best price at which the contract for the whole work could be let than the 3,080,562, which Mr. Owen gives as a rough inclusive estimate. He estimates that the coal traffic via the canal would be nearly 7,000,000 tons per annum, and allowing 1000,000 per mile per annum for working expenses and ordinary maintenance, and charging but 3d. per ton per mile for the coal carried through he estimates that there would be a net revenue of 372,548, per annum. It is proposed to form a syndicate with a view to get in a Bill in time for the next Session of Parliament, and it must be acknowledged that there are many projects much less deserving of general support.

QUICKSILVER.

TO THE 31ST OF JULY, INCLUSIVE.

	1881.		1882.
Season's import entries, bottles, about	45,846	...	about 46,990*
Imports from Jan. 1 to July 31	45,846	...	41,990
Exports	12,756	...	21,445
Imports for July	368	...	493
Exports for July	1,323	...	2,809
Price, 1881, about 6l. 10s. per bottle; 1882, about 5l. 17s. 6d. per bottle. Stock in London to July 31, 1882, roughly calculated, is about 105,000 bottles.			

* Including last December, Spanish.

London, Aug. 9.

J. BENNETT BROS.

THE COPPER TRADE.—The following are the Customs Returns of Copper for the past month, and also for the first seven months of this year, reduced to a common denominator, and compared with the same figures in 1881:— JULY IMPORTS.

	1882.		1881.
Copper, in pyrites	Tons 1372	.....	1256
Ditto, in ore	2526	.....	1964
Ditto, in regulus	1088	.....	606
Ditto, in precipitate	1509	.....	1414
Foreign raw copper	3111	.....	4321
Total tons	9606	.....	9561
Value of above	£565,453	.....	£510,372
IMPORTS, JANUARY 1 TO JULY 31.			
Copper of all descriptions	Tons 52,481	.....	49,715
Value of same	£3,257,139	.....	£2,957,265

PRINCIPAL COPPER PRODUCTIONS.—Messrs. H. R. MERTON and Co. have prepared an interesting table showing the supplies of copper from the several sources during the last three years. The figures are for the 12 months to Dec. 31 of each year, and represent tons of fine copper:—

	1879.		1880.		1881.
Chili	Tons 49,318	.....	42,916	.....	37,852
United States	23,550	.....	25,010	.....	30,882
Rio Tinto	12,751	.....	14,559	.....	15,693
Mansfeld	8,400	.....	9,800	.....	10,999
Thariss	*11,324	.....	*9,151	.....	*10,203
Australia	9,500	.....	9,700	.....	10,000
Mason and Barry	4,692	.....	6,603	.....	8,170
Cape Copper Co.	4,328	.....	5,038	.....	5,087
England	3,462	.....	3,662	.....	3,500
Russia	3,081	.....	*3,081	.....	*3,081
New Quebrada	1,697	.....	1,800	.....	2,823
Visnès	*2,000	.....	2,040	.....	2,350
Betts' Cove	*1,500	.....	*1,500	.....	1,718
Sweden	800	.....	1,074	.....	*1,200
Total	136,103	.....	135,934	.....	143,558

The figures marked with asterisks are estimated. The Chili figures represent the actual exports from Chili. The Australian figures represent the imports of Australian copper into Europe.

THE MINES COMMISSIONERS.—The Royal Commission on Explosions in Mines have just returned from a visit to South Wales. They expect they will be able to conclude their labours without making further experiments in mining districts.

RISCA EXPLOSION RELIEF FUND.—A meeting of the committee and trustees was held on Saturday, Mr. H. Russell Evans in the chair. There were also present Mr. E. H. Carbutt, M.P., Mr. Cordes, Mr. Cartwright, and a number of other gentlemen. The report of the management committee, fixing the scale of allowance to the widows and children, was approved of. The general committee was dissolved, and the funds were directed to be forthwith invested in the names of the following trustees:—Lord Tredegar, Mr. Carbutt, M.P., Mr. H. Russell Evans, Sir F. Truscott, Sir J. Johnson, Mr. Cartwright, Mr. McCannichie, and Mr. Cordes.

CONSETT IRON COMPANY.—The annual report made up to June 30 shows a profit of 128,494, independent of a small balance brought forward. Of the available balance of 128,870, 46,000, has been needed to pay the interim dividend of 12s. 6d. per share, and 18,470, to extinguish the special expenditure in Langley Park Colliery, Medomsley Coal Crusher, and Coke Ovens, and Steelworks, while the remaining 64,400, will be required on Aug. 21 to provide for a further recommended dividend of 17s. 6d. per share. The undivided profit of 24,700, now shows the following result:—8355, returned to shareholders in reduction of paid-up capital, there being a balance of 16,365.

IRON AND STEEL INSTITUTE.—The autumn meeting which it has been arranged shall this year be held in Vienna, extends from Sept. 19 to Sept. 23. The members can leave London on Friday, Sept. 15, and travel via Queenborough and Flushing (there are excellent sleeping berths aboard), lunching at Cologne, or the Saturday at 1:30, and arriving at Dresden at 6:30 on Sunday morning. On Monday morning the party will proceed to Vienna, which will be reached in 12½ hours. On Tuesday and following days the Rail Manufacturers' Association will provide luncheon, and on Tuesday evening the annual dinner in the Volksgarten will be held, the tickets costing 35s. each, which, considering Vienna prices, appears to be three or four times as much as necessary for as good a dinner as Vienna can provide. There will be an official reception and Conversation, and on Thursday the Institute will be entertained at dinner by the city of Vienna in the Kursalon, with concert and dance afterwards. On Friday there will be alternative excursions. As to the first to Leoben and Graz (Styria), a reception committee presided over by Prof. Ritter v. Tanner, has been formed at Leoben, and will make all necessary arrangements for the visits, &c., to be made there, which will, however, include the works of Donawitz and Neuberg, and the mining school. Members will spend the night at Leoben, and proceed next day over Vordernberg and the Styrian Erzberg to Eisenerz, where opportunities will be afforded for witnessing the manufacture of charcoal iron and the mining of the celebrated iron ore of this region. The alternative excursion is to Buda-Pesth (Hungary). A local committee presided over by Prof. von Kerpeley, has been formed at Pesth for the reception and entertainment of the Institute. A number of works in Pesth will be open to the reception of members, including the well-known engineering works of Ganz and Co., and some of the largest mills, &c. The special return train will leave Pesth for Vienna on Saturday evening, but it is hoped that arrangements can be made to enable members who may desire to prolong their stay in that city to do so, on their return tickets, some days later. Members who may desire to inspect the well-known works of Königshütte and Laurahütte, in Upper Silesia, are invited to do so on their return journey from Vienna, which is 10 hours distant. Members who may desire to see Witkowitz, Hechthaus, and other iron and steel works in different parts of Austria, will also be afforded opportunities of doing so. The local committee at Vienna have made arrangements with the Deutsche Eisenbahn Verein (the German Railway Union), which will

permit of members travelling from Flushing to Vienna for one-third less than the ordinary fare.

THE ORGANOS GOLD MINES (LIMITED).

There are few mining companies, the shares of which during the past month have risen so much in price or in which so large a business has been transacted, as those of the Organos Gold Mines (Limited). These shares in June at little over 17. per share now command something like 44. 10s., and we propose to discuss here somewhat briefly the reason for such a rise in price.

The Organos Gold Mines, which have for years been known to be exceptionally rich for the precious metal, were for a long time the property of an association of gentlemen who entertained the greatest possible belief in its value, and some of whom are among the largest holders in the present company, but the length of whose purse was hardly long enough to permit of their carrying on mining operations with any degree of certainty as regards success.

Hoping ever for better times and greater means, they held on to the Organos, as we have indicated, for a period of years, but ultimately determined that it would be better to effect a lease of these mines to parties having the necessary funds to work them properly, contenting themselves, and thereby showing their own bona fides and confidence in the value of the mines, with accepting merely a royalty upon all the gold which may be extracted. Hence the *raison d'être* of the company which was formed towards the middle of last year.

It will be seen by our Share List the capital of the Organos Gold Mines (Limited) is 15,000, in 12. shares; but it is not generally known that the whole of this 15,000, of capital was raised for, and has been devoted to the working of the mines, nothing being charged by the lessors or vendors for the lease, and that consequently the company stands forward, and almost alone, we think, in the extremely bona fide and legitimate manner in which it was placed before the public. It is only when companies are brought out in this or a similarly bona fide manner that the public have really fair means of profiting by venturing into mining and similar undertakings. In the case of the Organos the capital is so moderate that but small returns must yield large dividends, while the high average rate of gold contained in the quartz would indicate that these, the dividends, may exceed in amount the highest anticipations of those most interested in the concern. The most moderate of these anticipations—at least, as they appear in print—are those of the directors, who, when the company was inaugurated stated in their prospectus that "calculating the yield of gold at the rate of 3 oz. of gold per ton" (one-half the quantity obtained with the aid of most primitive and imperfect machinery from 30 tons of quartz by the well-known expert, Mr. Ezekiel Williamson) "the shareholders may reasonably look for the return of their capital in the shape of dividends every year."

How far the anticipations of the directors may be modified or increased we are not in a position to say. We note, however, that they do not fail when sending out official notices in calling the attention of their fellow-shareholders to what they stated in the prospectus, and we also note that while the published reports give assays of extraordinary richness, and mention that three points in the mine yield 9½ ozs. of gold, 10 ozs. of gold, and 5 ozs. of gold per ton respectively. It is also worthy of notice that Mr. Green's report or summary of work done during the past 12 months, and published in our issue of the 29th ult., it is stated that the whole of the quartz extracted during the four months preceding the date of his report would yield an average of 4 ozs. of gold per ton. In considering the claims of the Organos Gold Mines (Limited) as a mining speculation it is, of course, only possible to base an opinion upon the prospectus and the reports received from time to time. If, however, these prove correct there is every ground to look for a great and successful future for the company.

THE HEMATITE DEPOSITS OF FURNES.

A highly interesting paper on the Hematite Deposits of Furness was read before the North of England Institute of Mining and Mechanical Engineers at their last ordinary meeting by Mr. J. D. KENDALL, C.E., F.G.S. In continuation of his paper on the Hematite Deposits of West Cumberland the author points out the difference in the deposits of the two districts, which are mainly in the same geological system, but in differently developed forms. In Furness they are chiefly grouped in the carboniferous limestone round Maume, decreasing in number and extent as they recede therefrom except being the deposits found at Stainton, Yarlside, and Stank, which are adjacent to the two great lines of fracture traversing the district. The carboniferous limestone is in the same relative position as in West Cumberland. It is sparsely stratified with thin layers of shale; the formation is probably over 940 ft. thick, being in effect 119 fathoms thick at a bore-hole at Windhills, near Stainton. There are no beds in this formation of marked lithological character, and it is difficult to trace the faults. The dip of the rocks in the western part of the district is to the west, at angles varying from 20° to 45°. In the eastern part the general dip is to the south-east, at angles varying from 5° to 15°. The vertical joints bear 25° N.W. and S.E., another set being nearly E. and W., and all the caverns have one or other of these directions when not interfered with by faults. The composition of the limestone varies from 98 per cent. of carbonate of lime near Goldmire to 89 per cent. at Haume, and the average specific gravity is about 2.72. Sections are given showing how the carboniferous limestone varies at Furness, Cleator Moor, and Cocker-mouth.

In the second part of the paper the deposits are divided into the vein-like, the dish-like, and the irregular-shaped; bed-like deposits not being a characteristic of the district owing to the rocks being everywhere of the same character. In the vein-like deposits, which include some of the most important in the district, there is a general narrowing downwards notwithstanding the great variations in their width. The one at Lindal Moor is perhaps the finest of this class, being worked for 1000 yards in a direction N. 25° W. Its breadth is very variable from a few inches to 30 yards, due to the irregularity of the hanging-wall, the footwall being regular. The bottom seems to have been reached at the north end at a depth of between 60 and 70 fathoms; it lies alongside a fault. Similar deposits generally under similar conditions occur at Stank and at Yarlside.

The dish-like deposits are the most numerous, and they occur just below the drift. The Park deposit, which is the largest of this or any other class, is very irregular in form. It is about 360 yards long E. and W., and 260 yards N. and S., and is overlain by a drift of an average thickness of 10 fathoms. The ore extends to at least 83 fathoms from the surface downward. Although the basin contains large quantities of sand and clay yet it holds an enormous deposit of hematite, all others being much less. Of the irregular-shaped deposits the one at Askam is the only good sample, at one part it is immediately below the surface, and at another it is entirely surrounded with limestone. The author dissents from Mr. Greenwell's opinion that it is a bed-like deposit, and that there is an unconformity in the limestone above and below the ore. In their nature the deposits differ from those near Whitehaven, inasmuch as they are not interbedded with shale to anything like the same extent; they are, however, frequently interrupted by large masses of stone connected in some way with the main limestone. Some of the dish-like deposits have masses of red and white sand in them; in these and in some of the vein-like deposits masses of red, yellow, and white clay are met with, which when hard is called "hunger." This generally surrounds the ore, and separates it either from the limestone or the sand and other foreign substances. This clay, which sometimes contains vegetable matter, even permeates the fissures and fills the irregularities of the limestone casing.

As to the age of the deposits the author agrees with Professor Phillips as far as West Cumberland is concerned, considering them to belong to the early permian age, and in the Furness district there are no indications to show that the deposits date from a different period. With regard to the origin of the deposits, upon which there is much diversity of opinion, he considers that the source of the ore was volcanic, and that they have been formed by replacement from

QUICKSILVER.

THE CELEBRATED "A" BRAND.

SHIPPED DIRECT FROM THE NEW ALMADEN MINE, FOR SALE in any quantity, by the producers. CAR LOAD LOTS will be shipped from San José for NEVADA, ARIZONA, and the EAST, or delivered at Pacific Mail Steamship Company's Wharf, San Francisco, without charge.

THE QUICKSILVER MINING COMPANY,

J. B. RANDOL, Manager.

320, SANSOME STREET, SAN FRANCISCO, CALIFORNIA

Notices to Correspondents

* "Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

GEOLOGY OF COSTA RICA—"N.N."—The paper on the Geology of a Part of Costa Rica, read before the Geological Society of London, by Mr. George Attwood, A.M.I.C.E., a full abstract of which was published in the Mining Journal of June 17, has just been printed in separate form.

Received—"Argus" (Kapanga)—"U.W."—"A.S." (Lake Superior Copper)—"P.J.S." (Nava de Jadraque, Spain)—"A.R.M."—"H.T."—"J.M.U." (Great Wheel Polgooth)—"Constant Reader" (Bath)—"Amicus" (Dublin)—"One Interested" (Southampton).

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, AUGUST 12, 1882.

THE NEW BOILERS EXPLOSION ACT.

Owners and users of boilers in all parts of the kingdom should be made acquainted with the fact that an Act came into operation on July 12 with respect to boiler explosions. Many explosions have taken place that with ordinary care might have been prevented, thus necessitating greater stringency than has hitherto been the case, and the laying down of certain regulations as preventive measures. This has been done not only in the interests of workmen but in that of the employers of labour as well, for the latter should consider that they run great risks under the Employers' Liability Act if they do not take every known precaution to prevent injury from a boiler exploding. Boilers before being put in motion should undergo a practical examination so as to see that the material is in no way defective either as regards ductility or tensile strength. A good deal also depends upon the rivetting, and it has been found that that done by machine or hydraulic power is far superior to what can be effected by the most skilful workman by hand. Explosions not unfrequently take place owing to a boiler being overworked, for whenever too much fuel is thrown upon the fire the water does not receive the heat sufficiently fast for the plates, which then become almost red-hot, and are weakened to such an extent as to be unable to resist the working pressure. Good water is also very essential in keeping boilers in a safe condition, for internal corrosion has a most serious effect on boilers; external corrosion, on the other hand, is not so dangerous, and can be easily avoided, seeing that it is caused by the water and ashes gradually eating the plates away. But there is another cause for boiler explosions which we have had more than once pointed out to us, and that is the incompetency of the man in charge, for on him more than anything else depends the safety of the boilers placed under his control. Where there are leakages a good man will not be slow to discover them, and when that is not the case then the boiler gets depleted of water, the plates get red-hot, and an explosion is the result. But in all cases there should be a low-water safety-valve with an alarm, so that when the water gets low the man in charge would be apprised of it, and would act accordingly to what was required. There are, however, many ways in which a boiler may explode in addition to those we have enumerated, but it should always be remembered by steam boiler users that a greater amount of safety is insured when the boilers are fed with hot water instead of with cold, and for this purpose GIFFARD'S injector will be found most invaluable, and so also is the exhaust injector which feeds the boiler and raises the temperature of the water to about 190°. Having said so much with respect to the causes of boiler explosions we will now refer to the Boiler Explosion Act of 1882, and to some of its main provisions, and with these all persons having to use steam-power should be conversant. There is, however, we may say, one exception to what we have just stated, and that is with respect to boiler explosions into which an enquiry may be made under the Coal Mines Regulation Act of 1872, or the Metalliferous Mines Act of 1872, or in the case of a steam-vessel having a certificate from the Board of Trade. When an explosion takes place a similar notice to that given when a fatal accident takes place in a mine has to be sent to the Board of Trade within 24 hours after the occurrence in a certain form provided for the purpose.

In the notice sent to the Board of Trade there must be stated the precise locality where the explosion took place, the name of the works, and the postal address, the day and hour of the explosion, the number of persons killed or injured respectively, together with a description of the boiler, the purpose for which it was used, the part which failed, and the extent of the failure or fracture. And in addition to this there has to be stated the pressure at which the boiler was worked, together with the name and address of the association by which the boiler was last inspected or insured. Where the required notice is not given the party liable for the default is subject to a penalty of 50*l*. This part of the Act appears to have been borrowed from the Mines Regulation Act of 1872, as does that relating to an enquiry. It appears when notice of an explosion has been sent to the Board of Trade the latter may order a formal enquiry, or a thorough investigation should such be considered necessary. In either case the party entrusted with the enquiry may enter any building, examine witnesses, and summon them; enforce the production of books, papers, and documents, administer oaths, and require witnesses to make declarations as to the truth of their statements. But the whole of the machinery appears to be more elaborate and complicated, as is the case with respect to mining explosions, which, of course, are far more serious than those that can possibly arise from boilers. In the first place there is to be a preliminary enquiry conducted by either one or two practical engineers, as may be considered necessary, but they are expected to be thoroughly acquainted with all that relates to boilers, their manufacture, working, and power.

After this, on a report being received, a formal court of enquiry is to be constituted, for the purpose of going into all the particulars. This court is to consist of not less than two commissioners, one of whom is to be a practical engineer, thoroughly conversant with all that relates to boilers, their manufacture, and working; and the other is to be a lawyer of some standing, and in full practice. Such a combination it is believed will be a safeguard against the introduction of evidence of a hearsay character, or that which is not strictly legal in the ordinary acceptance of the term. In all cases the Board of Trade has the appointing of the commissioners, and who will have to report to the Board the result of their enquiries, and who have the power to publish such reports. In addition, the court appointed by the Board of Trade has power to order the costs and expenses of a preliminary enquiry or formal investigation, or any portion of either, to be paid by any person summoned before it, or by the Board of Trade. Power is also to be given to the commissioners to pay witnesses for their attendance, and to pay to the persons holding any enquiry or investigation such remuneration as the Board of Trade, with the consent of the Treasury, may consent to.

We are not much in favour of giving too much power to Government officials in connection with trade matters, for they can put persons to great and unnecessary inconvenience in making investigations into what they consider abuses and negligence; but at the same time, as we are told by the highest authorities, that boiler explosions are really preventable, we consider that something more was required in addition to the ordinary law on the subject and the Employers' Liability Act, and we therefore believe that the Act which has just come into operation may be the means of doing a great deal of good if carried out with caution and consideration, and without annoyance to those who may have the misfortune to have a defective boiler.

COAL AND THE IRON TRADE.

It has always been urged and considered that the iron trade is the best support—or, at any rate, one of the best supports—of the coal trade. In the production of pig-iron alone Great Britain consumed last year 18,011,000 tons of coal, or 11 per cent. of the whole British coal production of the year. A further consumption of coal in the manufacture of iron and steel of various kinds absorbed 16,663,000 tons more, so that altogether the metallurgical industry of the country consumed 34,674,000 tons, or nearly 22 per cent. of its whole coal production last year. This was a very important production, but it appears that 10 or 12 years since the corresponding proportion was as high as 30 per cent. But whatever the exact proportion may be the substantial fact remains conclusively established that the British ironmaster is one of the best clients—if not exactly the best client—of the British colliery proprietor. The comparative reduction in the consumption of coal for each ton of iron made in Great Britain is due, no doubt, to improvements effected in the manufacture. Had the consumption continued in 1881 at the same rate as that which prevailed 10 or 12 years previously the British iron trade would have absorbed upwards of 48,000,000 tons of British coal instead of the 34,674,000 tons actually consumed by it. The saving of 11,859,000 tons estimated to have been secured in last year's consumption was largely due to improvements effected in the manufacture of pig, the proportionate reduction in the consumption under that head last year being estimated at 7,121,000 tons. It is expected that in a few years when the utilisation of the lost gases of blast-furnaces and puddling-furnaces has become more general, and when steel made on the GILCHRIST-THOMAS principle has more generally replaced iron a still further proportionate reduction in the consumption of coal will be effected.

This, of course, will be not only an advantage to British ironmasters, but it will be a distinct gain to the country at large, as anything which tends to economise the coal wealth of Great Britain must also assist to prolong its industrial greatness. Nothing can compensate a country the industries of which are mainly dependent upon steam-power for an exhaustion of its coal wealth; and, therefore, anything calculated to economise that coal wealth must be regarded as a matter of the highest importance. It will be interesting to contrast the proportionate coal consumption of the iron manufacture of the seven leading countries of the world. By the expression "proportionate coal consumption" we mean the proportion sustained by the coal consumption of the metallurgical industry of each country to its whole coal production. In Great Britain, as we have already shown, this proportion stood last year at 11 per cent. In Germany the corresponding proportion was 14 per cent.; in the United States, 14 per cent.; in France, 26 per cent.; in Belgium, 7 per cent.; in Russia, 32 per cent.; and in Austria, 19 per cent. It will be seen that the lowest proportion has been obtained in Belgium, but that Great Britain stands very well upon the list, especially having regard to the extent of its metallurgical industry, which is the largest and most important in the world. Of course, the less coal which can be consumed in the production of iron the cheaper the terms and conditions upon which it can be made, and the more cheaply production is effected the more likely it is to grow in importance. Our ironmasters have clearly a strong inducement to proceed still further in the matter of coal economies, and we trust that they will endeavour to do so not merely for private reasons but also upon public grounds.

FORGING OF METAL BRANDS.

That the forging of trade marks is carried out on a far more extensive scale than most people believe is pretty evident, and where one forger has the charge brought home to him it is probable that fifty escape, and are able to carry on the illicit trade to a good profit. In most instances it may be that the forged article does not materially differ from the genuine one, but in others it is different, and the consequences of the substitution of one for the other might be serious. This is particularly the case with iron for certain purposes requiring an amount of tensile strength and strain that is not necessary in every case. If the iron is not of the required quality it may result in the breaking down of machinery, or in the event of being connected with the drawing apparatus at a deep mine might lead to a serious disaster. Therefore, where persons forge a well-known brand, which gives a guarantee as to the high quality of the metal, the punishment should certainly be commensurate with the gravity of the offence, in the event of the charge being conclusively brought home to the offender. This was the view taken by Mr. Justice DAY lately at the Manchester Assizes, when an ironfounder named JOHN PEMBERTON, carrying on business at the Ellesmere Foundry, Manchester, was charged with having forged the trade mark of the Low Moor Iron Company, with intent to defraud, he having represented an inferior quality of iron to be Low Moor. The iron made by the latter is well known at home, and has the highest reputation for strength and tenacity, and for the prevention of fraud the company registered a trade mark, consisting simply of the words "Low Moor." This mark is recognised by the trade, and when the iron is branded with it then it is considered to be genuine. It appears that an engineer in Rochester ordered from a Glasgow firm a cone tube, and the latter gave the order to PEMBERTON, the stipulation being that it should be made of the best Low Moor iron. The tube was made and sent to Rochester, when it was found to have "Low Moor" stamped on the outside, whilst on the inside there was stamped "Tudhoe," with three stars. In fact, the iron was the best Tudhoe, the price of which was 12*l*. per ton, whilst the Low Moor sold at 22*l*. per ton. This certainly looks a wide difference in material apparently similar, but there are, probably, no ironmakers in the kingdom who take the same trouble in producing the finest possible quality metal as the Low Moor Company does. Samples of the refined metal are broken after going through the refining furnaces, and each charge is sorted according to the number of blows it stands without breaking, and none but refined metal is charged into the puddling furnaces. Each man's make of iron is carefully examined, and a number is given to him in accordance with the quality, and the man who gets the lowest number has to remain out of work a week. The puddled balls are hammered into blooms, and these are then piled, re-heated, and again hammered before being rolled off. By these means the iron cannot be excelled, and for high-class work is in great demand, even at the high price charged for it as compared with other iron.

In the case in question, the weight of iron was only 2 cwt. 16 lbs., and the charge made for it 1*l*. 13*s*. And here we may say that it is but seldom we hear of criminal charges like this being preferred under the Merchandise Marks Act, although the second section made it an offence to forge or counterfeit, or cause to be forged or counterfeited, any trade mark which shall denote or be intended to denote the manufacture of any other person, for civil action for damages have usually been resorted to. But we are of opinion that the best way to put a stop to such fraudulent acts on the part of persons who cannot plead that they were not aware they were doing wrong is to treat those guilty of them as criminals, the same as the Low Moor Company did Mr. PEMBERTON, whom the jury found guilty of the offence with which he was charged. The aspect of the case was treated by Mr. Justice DAY in a very strong manner in passing sentence. He said that poor men who were pressed by poverty and yielded to temptation were punished for committing such offences as the prisoner had done, and the prisoner himself

would expect that any person who sought to obtain his money by fraud should be severely dealt with, and he (the Judge) could not make any distinction between one man and another. The offence was a grave one, having regard to the prisoner's own position and having regard to the number of men working under him. The offence was a fraud upon the buyer of the iron, it was a fraud upon the person for whom the iron was intended, and in whose boiler it was to be placed, and upon the honest tradesman carrying on a similar business. The Judge then sentenced him to three months' imprisonment without hard labour. The sentence may appear to be a severe one, but it will have a most salutary and deterrent effect with respect to other persons who are now engaged in similar malpractices not only in the metal trades but in many others as well, and who are willing to run great risks in the making of a little extra profit. Were the interests of trade marks to be dealt with in the same way as the Low Moor Company have acted towards Mr. PEMBERTON, such frauds as are now carried on daily with impunity would soon be all but unknown. But those who are guilty of them feel that if they are discovered they will only have to pay a certain amount of damages; but when they find that there is some probability of their being sent to prison for a few months it would make them pause, and take into consideration the risk they incurred by unfair dealing.

BOILER EXPLOSION AT A MINE—A CAUTION

At the Rochdale County Police Court on Wednesday, Henry Heys, the owner of a stone quarry at Facit, was charged with committing a breach of the Metalliferous Mines Regulation Act of 1872, by employing a youth under 18 years of age as engine-tender. Mr. C. H. Holden, of Bolton, appeared on behalf of Mr. Joseph Dickinson, Inspector of Mines, to prosecute, and Mr. A. Molesworth defended. Mr. Holden explained to the magistrate that Messrs. Heys and Co. were the owners of a subterranean mine or quarry at Facit, which was worked from the surface by a boiler and engine. They let the stone-getting out to contractors, who employed persons to attend to the engine and boiler. A few weeks one of the boilers exploded, and the youth in charge of it, named Saunders, was killed. The deceased was 16 years of age, and as persons occasionally rode down the engine plane into the mine, he clearly ought not to have been employed, but he thought it had been an oversight on the part of Mr. Heys. Mr. Molesworth stated that the deceased had only been employed three days in charge of the engine, and that at the time it was thought he was over 18 years of age. Mr. R. Hurst, the chairman, said that as Mr. Dickinson did not press for a heavy penalty they would impose a fine of 3*l*. and costs.

This was, perhaps, the first boiler explosion since the passing of the Boiler Explosions Act, 1882. It took place on July 12 (the date of the Act) at the stone mine at the Facit quarries, belonging to Messrs. Henry Heys and Co., when, as stated, the youth who was in charge of the engine lost his life, several others who were near having very narrow escapes. The explosion being in connection with a mine is not comprised by the new Act, but is under the Mining Act, and was investigated under the ordinary course by the Coroner and the Inspector of Mines. At the inquest, which was opened on July 15 and concluded on the 27th, by Mr. J. Molesworth, Coroner, and attended by Mr. Dickinson, Chief Inspector of Mines, it appeared that the boiler was a vertical one, of small dimensions, having a fire-box, with two Galloway tubes, and an uptake through the interior of the shell, the construction being similar to that of about 13 boilers which are worked in these quarries, besides many others in the neighbouring quarries.

The evidence showed that the fittings had been all complete, and that the boiler was adequately constructed for the working pressure of not exceeding 60 lbs. on the square inch. The markings of tarry soot left on the plates of the fire-box, and in the interior of the lower part of the uptake showed that the boiler was not short of water, and the rents in the iron were clean tears, indicating an explosion from over-pressure. At first there appeared some mystery, but this was dispersed, and the evident cause arrived at. A few days before the explosion the roof of the boiler-house got on fire, when the end of some of the spars were burnt off and the ridge-tree nearly burnt through; so that the roof, which was slated with heavy grey slates, such as are worked at the quarries, became bent down until the end of one of the pegs which fastened the slates, rested directly upon the end of the lever of the safety-valve. This was discovered, and the peg removed, leaving about 2 in. between the end of the lever and the slates, where the distance had been originally 6 in. No support was put to the burned spars and roof-tree, and doubtless the subsiding continued until the slates rested upon the lever, and hence, the valve being prevented from acting, such an undue pressure of steam was occasioned as to burst the boiler.

Besides the loss of life, the engine was damaged, and the house in which the boiler stood was blown away. The shell of the boiler, with the uptake and a small piece of the fire-box attached, were blown about 100 yds. in one direction, and the three other parts into which the crown was blown were in the opposite direction, the furthest piece being about 80 yds. from the original seat, whilst the fire-box was merely turned over on the site. Mr. Henry Longridge, of the Boiler Insurance Association, attended at the inquest, and the case was watched by Mr. Brierley, solicitor, Rochdale, on behalf of the relatives of the deceased.

BESSEMER STEEL PROGRESS.

At the present time considerable activity prevails in connection with the manufacture of Bessemer steel in putting down new plant and in increasing the productive power at some of the works, but the places in which it was originally located see the trade gradually but surely going away. Cammell and Co. of the Cyclops Works, Sheffield, are about to commence the erection of mills and buildings at Workington, so as to be near the seaboard, and in Cleveland Blockow and Vaughan have put down additional plant, so that the company promises to be the largest producers in the kingdom, and are now working both by the basic and the ordinary Bessemer process. Sheffield indeed appears to be falling back, whilst South Wales and the North of England are going forward. Staffordshire is about to enter the lists by adopting the Gilchrist-Thomas system, and there is every reason to believe that the other counties in which ordinary ironstone are found in connection with the coal will adopt a similar course. In those districts where the ore and material for smelting can be raised there will be a great advantage over those where only one of them is obtained. It has long been a subject for discussion as to whether it was most economical to bring the ore to the coal where only one of them existed, or vice versa, for in either case there is a considerable outlay for carriage. But now that it is not necessary to use the home or Spanish hematites in the making of steel a great change is taking place, caused principally by the successful introduction of the basic process, so that there are several counties that can now work it without any outside aid whatever, having all the necessary requisites on the spot. This is the case for instance in Derbyshire, the West Riding, Shropshire, Gloucestershire, Staffordshire, and some other counties as well. But there are some others like Lincolnshire, Rutland, Oxfordshire, and Northamptonshire in which there is an abundance of ore but no coal, and in these it is not unlikely that steel will be made seeing that the ores are well suited for the purpose, and being near the surface can be worked very cheaply. This to some extent would counterbalance the disadvantage. In fact, Northamptonshire and Lincolnshire are both able to sell their iron as low as those counties where the coal and ore are near to each other, or as is the case in some parts of the West Riding, where the two are got together. In the North of England the coal near to the furnaces is now being drawn upon more than it has been, and we may expect to see local ores in connection with coal more extensively drawn upon in many districts where such is not now the case. The steel competition indeed promises to be severe, so that where the raw material is slow at hand, labour plentiful and moderate in price, there will be the success be the greatest. In both these advantages must also be included transport facilities by railway and sea. Cleveland appears to have met it not all of them

advantages, and the progress made there in the production of Bessemer has been really astonishing if only one year is taken as a guide. Rails, of course, are the principal outcome of the Bessemer manufacture, and of these there were turned out as follows during the last two years:—

	1880.	1881.
South Wales	Tons 258,404	Tons 305,043
Sheffield	151,174	245,469
Lancashire	116,431	135,543
Cumberland	114,096	121,093
Cleveland	92,559	216,004

732,664 1,023,152

Seeing that Cleveland has only of late gone into the steel rail trade, it will be evident that the progress made has been something extraordinary during last year. But this is not all, for since then more powerful machinery has been put down, including two of the largest converters yet made. They were the work of Messrs. Tannett, Walker, and Co., of Leeds, who appear to have made Bessemer plant a speciality, for there has been a great demand upon the resources by both home and Continental manufacturers. The converters take a charge of 15 tons of steel, and will weigh, when filled up, close upon 80 tons each. The same firm also made a similar pair for the Société des Acieries, Longwy, and have produced the entire Bessemer plant, including blowing-engines, hydraulic machinery, compound cogging mill engines and converters, for Messrs. Caramin and Foy, of Thy-le-Château, in Belgium, who were amongst the best known iron rail makers on the Continent. Previous to the commencement of the present year the largest converters were only 10 tons, and before that many were of a capacity of from 5 to 8 tons only. But during the last two years large converters have been made for superseding the smaller ones, so that whilst in 1879 the average yield of each was only 12,641 tons, last year it was 17,582 tons. Now, however, the average yields are at the rate of something like 25,000 tons. Towards the close of last year no less than 10 entirely new plants were in course of construction, showing that the steel rail trade is more than usually active, and is looked forward to as being one of the most promising industries of the future. But in addition to rails there is an increasing demand for ingots for other purposes as well, and last year the quantity amounted to about 400,000 tons, and a heavy tonnage in the shape of blooms was exported to America last year. Plates for shipbuilding purposes are now becoming in better demand, although during the present year the make is said to be only at the rate of about 25,000 tons a month. But the second half of the present year will undoubtedly show much better, for a good deal of the Bessemer steel is now being required for armour-clad vessels, and the consumption of late has been particularly heavy. In addition to this Bessemer can be made to stand almost any strain, and for many purposes for which it has not formerly supposed to be suitable it is now extensively used. Eventually manufacturers are taking kindly to it for certain descriptions of work. However it would appear that the greatest amount of progress will be made in the North of England, where the works are close to supply ports, for a large tonnage of the rails made are for exportation. Again, the proximity of Bessemer works to large shipbuilding yards must be greatly in their favour, seeing that the cost for railway carriage for inland districts is a heavy item. So far, however, as regards our home consumption of steel rails Sheffield and other inland districts will be in perhaps a more favourable position for supplying the wants of English railway companies than the North of England. However, there is no mistaking the fact that the Bessemer steel industry is becoming one of the most important in the kingdom, whilst, with a rapidly increasing demand, new works are springing up to meet it, so there will be a healthy competition on all sides which will result in the English makers maintaining their supremacy in all markets.

GREAT WESTERN MARITIME SHIP CANAL.

We have been favoured with advance sheets of a pamphlet giving much valuable information and many interesting details concerning the Great Western Maritime Ship Canal, proposed by Mr. F. A. OWEN, of Hayes, the object of which is to provide a safer and shorter route from the South Wales and Bristol coal fields to London and the various ports of France, east of St. Malo, Belgium, Holland, &c., by forming a new waterway to connect the Bristol Channel with the English Channel. It is believed that not only will the undertaking be of vast importance to the trade of the ports in the Bristol Channel, but that there will be sufficient traffic through the canal to ensure a satisfactory return to those who undertake its construction. It is pointed out that taking Cardiff as the central point the distance from there to Exmouth by sea is 370 miles, whilst by way of the canal it would be reduced to 80 miles, and this 290 miles saving would be of advantage also in shipments to the north of France, Belgium, and Holland. It is added that the direct maritime route would supply the inhabitants of the southern counties with abundant and cheap fuel, an object of national importance which should command public support. This was the strong argument of more than one railway scheme for cheapening the supply of coal to London from the north, the rejection of which in the interest of protection was at the time so severely commented upon by the Metropolitan Press.

That an abundance of coal to supply the canal with traffic is evident from the mere mention of the fact that in the report issued by the Royal Coal Commissioners in 1871 it is stated that the strata of the South Wales and the adjoining coal fields are estimated to contain at practicable depths the enormous quantity of 36,940,179,675 tons. These western coal fields form in fact the largest deposit of the mineral in England, having an area of over 1200 square miles which is comparatively unworked. The products of the Welsh and adjacent coalfields are in most respects equal to north country or Yorkshire coal, the smokeless varieties being unquestionably superior to all others, and being cheaper to use for steam and manufacturing purposes will always command the market, and as these coals would be by the suggested route be placed by sea within 355 miles of London, equidistant with the northern coal fields, and of course proportionately nearer to the western and southern counties, there appears no reason why they should not be delivered at greatly reduced rates in those counties, and compete on equal terms even in the Metropolitan area; in short the opening of the canal would cheapen fuel in the whole of the district south of the Thames.

It is proposed that the northern outlet of the canal should be near the village of Stolford, at the south-east angle of Bridgewater Bay, and west of the tidal river Parret. From Stolford the canal would follow a straight level line to Combwith Reach, and the pill or stream which falls into the Parret at this point. Combwith to Bridgewater would be a direct line, and then following the line of the old Bridgewater and Taunton Navigation, now the property of the Great Western Railway, and little used, the canal would reach Taunton. Docks would be formed there and at Bridgewater and other large depôts, to accommodate the through trade and the important local traffic of the district. The remaining section would be parallel with and include the site of the nearly abandoned Grand Western Canal (also absorbed by the railway company) to Wellington and Burlescombe, and there diverging it would take the valleys to Collymore and Exeter via Kellerton Park and Stoke Cannon. Between Wellington and Burlescombe the land gradually rises, and culminates at White Ball Hill in an elevation of 536 ft., which is pierced by the Bristol and Exeter railway tunnel. It is one of the western spurs of the Black Down range, which forms the principal watershed of this part of the country. The old canal makes the circuit of the hill, and Mr. Owen has adopted the same line, and the summit level of the route would be near Grinham Barton, some 350 ft. lower in the adjacent valley, and at this point the deepest cutting would occur. The total length of the canal would be 62 miles, and there would be no locks except at the two ends. The aggregate cost would probably be under 1,000,000*l.*, or including harbour works and accessories 1,500,000*l.*, but Mr. Owen does not give any estimate until detailed surveys are made.

The new waterway should, Mr. Owen considers, be 126 ft. wide at surface, 56 ft. at bottom, and 21 ft. deep. These are the proportions of the Grand Ship Canal of Holland, from Amsterdam to the Meider (available for fully loaded vessels of 1000 to 1200 tons, drawing

18 ft.), and would probably be adequate for the requirements of the traffic. Mr. Owen takes the price at 30,000*l.* per mile, but this is obviously too high considering the economy now obtainable with rock drills, steam navvies, and cheap coal—the canal being practically on the coal field—and considering also the fact that the Grand Canal in Holland cost but 20,000*l.* per mile. In practice it will certainly be found that the 1,500,000*l.* already stated would be nearer the best price at which the contract for the whole work could be let than the 3,080,562*l.* which Mr. Owen gives as a rough inclusive estimate. He estimates that the coal traffic via the canal would be nearly 7,000,000 tons per annum, and allowing 1000*l.* per mile per annum for working expenses and ordinary maintenance, and charging but 4*d.* per ton per mile for the coal carried through he estimates that there would be a net revenue of 372,548*l.* per annum. It is proposed to form a syndicate with a view to get in a Bill in time for the next Session of Parliament, and it must be acknowledged that there are many projects much less deserving of general support.

QUICKSILVER.

TO THE 31ST OF JULY, INCLUSIVE.

	1881.	1882.
Season's import entries, bottles, about	45,846	about 46,990*
Imports from Jan. 1 to July 31	45,846	41,990
Exports	12,756	21,445
Imports for July	368	493
Exports for July	1,323	2,809
Price, 1881, about 6 <i>l.</i> 10 <i>s.</i> per bottle; 1882, about 5 <i>l.</i> 17 <i>s.</i> 6 <i>d.</i> per bottle. Stock in London to July 31, 1882, roughly calculated, is about 105,000 bottles.		

* Including last December, Spanish.

London, Aug. 9. J. BENNETT BROS.

THE COPPER TRADE.—The following are the Customs Returns of Copper for the past month, and also for the first seven months of this year, reduced to a common denominator, and compared with the same figures in 1881:— JULY IMPORTS.

	1882.	1881.
Copper, in pyrites	Tons 1372	1256
Ditto, in ore	2526	1964
Ditto, in regulus	1088	606
Ditto, in precipitate	1509	1414
Foreign raw copper	3111	4321

Total tons

Value of above

Imports, January 1 to July 31.

Copper of all descriptions

Value of same

PRINCIPAL COPPER PRODUCTIONS.—Messrs. H. R. MERTON and Co. have prepared an interesting table showing the supplies of copper from the several sources during the last three years. The figures are for the 12 months to Dec. 31 of each year, and represent tons of fine copper:—

	1879.	1880.	1881.
Chili	Tons 49,318	42,916	37,852
United States	25,350	25,010	30,882
Rio Tinto	12,751	14,559	15,693
Mansfeld	8,400	9,800	10,999
Tharsis	*11,324	*9,151	*10,203
Australia	9,500	9,700	10,000
Mason and Barry	4,692	6,603	8,170
Cape Copper Co.	4,328	5,038	5,087
England	3,462	3,662	3,500
Russia	3,081	*3,081	*3,081
New Quebrada	1,597	1,800	2,823
Visnès	*2,000	2,040	2,350
Betts' Cove	*1,500	*1,500	1,718
Sweden	800	1,074	*1,200

Total

The figures marked with asterisks are estimated. The Chili figures represent the actual exports from Chili. The Australian figures represent the imports of Australian copper into Europe.

THE MINES COMMISSIONERS.—The Royal Commission on Explosions in Mines have just returned from a visit to South Wales. They expect they will be able to conclude their labours without making further experiments in mining districts.

RISCA EXPLOSION RELIEF FUND.—A meeting of the committee and trustees was held on Saturday, Mr. H. Russell Evans in the chair. There were also present Mr. E. H. Carbutt, M.P., Mr. Cordes, Mr. Cartwright, and a number of other gentlemen. The report of the management committee, fixing the scale of allowance to the widows and children, was approved of. The general committee was dissolved, and the funds were directed to be forthwith invested in the names of the following trustees:—Lord Tredegar, Mr. Carbutt, M.P., Mr. H. Russell Evans, Sir F. Truscott, Sir J. Johnson, Mr. Cartwright, Mr. McConnachie, and Mr. Cordes.

CONSETT IRON COMPANY.—The annual report made up to June 30 shows a profit of 128,494*l.*, independent of a small balance brought forward. Of the available balance of 128,870*l.*, 46,000*l.* has been needed to pay the interim dividend of 12*s.* 6*d.* per share, and 18,470*l.* to extinguish the special expenditure in Langley Park Colliery, Medomsley Coal Crusher, and Coke Ovens, and Steelworks, while the remaining 64,400*l.* will be required on Aug. 21 to provide for a further recommended dividend of 17*s.* 6*d.* per share. The undivided profit of 24,700*l.* now shows the following result:—835*l.* returned to shareholders in reduction of paid-up capital, there being a balance of 16,365*l.*

IRON AND STEEL INSTITUTE.—The autumn meeting which it has been arranged shall this year be held in Vienna, extends from Sept. 19 to Sept. 23. The members can leave London on Friday, Sept. 15, and travel via Queenborough and Flushing (there are excellent sleeping berths aboard), lunching at Cologne, or the Saturday at 1.30, and arriving at Dresden at 6.30 on Sunday morning. On Monday morning the party will proceed to Vienna, which will be reached in 12½ hours. On Tuesday and following days the Rail Manufacturers' Association will provide luncheon, and on Tuesday evening the annual dinner in the Volksgarten will be held, the tickets costing 35*s.* each, which, considering Vienna prices, appears to be three or four times as much as necessary for as good a dinner as Vienna can provide. There will be an official reception and conversation, and on Thursday the Institute will be entertained at dinner by the city of Vienna in the Kursalon, with concert and dance afterwards. On Friday there will be a further excursion. As to the first to Leoben and Graz (Styria), a reception committee presided over by Prof. Ritter v. Tunner, has been formed at Leoben, and will make all necessary arrangements for the visits, &c., to be made there, which will, however, include the works of Donawitz and Neuberg, and the mining school. Members will spend the night at Leoben, and proceed next day over Vordernberg and the Styrian Erzberg to Eisenerz, where opportunities will be afforded for witnessing the manufacture of charcoal iron and the mining of the celebrated iron ore of this region. The alternative excursion is to Buda-Pesth (Hungary). A local committee presided over by Prof. von Kerpeley, has been formed at Pesth for the reception and entertainment of the Institute. A number of works in Pesth will be open to the reception of members, including the well-known engineering works of Ganz and Co., and some of the largest mills, &c. The special return train will leave Pesth for Vienna on Saturday evening, but it is hoped that arrangements can be made to enable members who may desire to prolong their stay in that city to do so, on their return tickets, some days later. Members who may desire to inspect the well-known works of Königshütte and Laurahütte, in Upper Silesia, are invited to do so on their return journey from Vienna, which is 10 hours distant. Members who may desire to see Withowitz, Reichenau, and other iron and steel works in different parts of Austria, will also be afforded opportunities of doing so. The local committee at Vienna have made arrangements with the Deutsche Reichsbahn Verein (the German Railway Union), which will

permit of members travelling from Flushing to Vienna for one-third less than the ordinary fare.

THE ORGANOS GOLD MINES (LIMITED).

There are few mining companies, the shares of which during the past month have risen so much in price or in which so large a business has been transacted, as those of the Organos Gold Mines (Limited). These shares in June at little over 1*l.* per share now command something like 4*l.* 10*s.*, and we propose to discuss here somewhat briefly the reason for such a rise in price.

The Organos Gold Mines, which have for years been known to be exceptionally rich for the precious metal, were for a long time the property of an association of gentlemen who entertained the greatest possible belief in its value, and some of whom are among the largest holders in the present company, but the length of whose purse was hardly long enough to permit of their carrying on mining operations with any degree of certainty as regards success.

Hoping ever for better times and greater means, they held on to the Organos, as we have indicated, for a period of years, but ultimately determined that it would be better to effect a lease of these mines to parties having the necessary funds to work them properly, contenting themselves, and thereby showing their own *bona fides* and confidence in the value of the mines, with accepting merely a royalty upon all the gold which may be extracted. Hence the *raison d'être* of the company which was formed towards the middle of last year.

It will be seen by our Share List the capital of the Organos Gold Mines (Limited) is 15,000*l.*, in 1*l.* shares; but it is not generally known that the whole of this 15,000*l.* of capital was raised for, and has been devoted to the working of the mines, nothing being charged by the lessors or vendors for the lease, and that consequently the company stands forward, and almost alone, we think, in the extremely *bona fide* and legitimate manner in which it was placed before the public. It is only when companies are brought out in this or a similarly *bona fide* manner that the public have really fair means of profiting by venturing into mining and similar undertakings. In the case of the Organos the capital is so moderate that but small returns must yield large dividends, while the high average rate of gold contained in the quartz would indicate that these, the dividends, may exceed in amount the highest anticipations of those most interested in the concern. The most moderate of these anticipations—at least, as they appear in print—are those of the directors, who, when the company was inaugurated stated in their prospectus that "calculating the yield of gold at the rate of 3 oz. of gold per ton" (one-half the quantity obtained with the aid of most primitive and imperfect machinery from 30 tons of quartz by the well-known expert, Mr. Ezekiel Williamson) "the shareholders may reasonably look for the return of their capital in the shape of dividends every year."

How far the anticipations of the directors may be modified or increased we are not in a position to say. We note, however, that they do not fail when sending out official notices in calling the attention of their fellow-shareholders to what they stated in the prospectus, and we also note that while the published reports give assays of extraordinary richness, and mention that three points in the mine yield 9½ ozs. of gold, 10 ozs. of gold, and 5 ozs. of gold per ton respectively. It is also worthy of notice that Mr. Green's report or summary of work done during the past 12 months, and published in our issue of the 29th ult., it is stated that the whole of the quartz extracted during the four months preceding the date of his report would yield an average of 4 ozs. of gold per ton. In considering the claims of the Organos Gold Mines (Limited) as a mining speculation it is, of course, only possible to base an opinion upon the prospectus and the reports received from time to time. If, however, these prove correct there is every ground to look for a great and successful future for the company.

THE HEMATITE DEPOSITS OF FURNESS.

A highly interesting paper on the Hematite Deposits of Furness was read before the North of England Institute of Mining and Mechanical Engineers at their last ordinary meeting by Mr. J. D. KENDALL, C.E., F.G.S. In continuation of his paper on the Hematite Deposits of West Cumberland the author points out the difference in the deposits of the two districts, which are mainly in the same geological system, but in differently developed forms. In Furness they are chiefly grouped in the carboniferous limestone round Haume, decreasing in number and extent as they recede therefrom except being the deposits found at Stainton, Yarlside, and Stank, which are adjacent to the two great lines of fracture traversing the district. The carboniferous limestone is in the same relative position as in West Cumberland. It is sparsely stratified with thin layers of shale; the formation is probably over 940 ft. thick, being in effect 119 fathoms thick at a bore-hole at Windhills, near Stainton. There are no beds in this formation of marked lithological character, and it is difficult to trace the faults. The dip of the rocks in the western part of the district is to the west, at angles varying from 20° to 45°. In the eastern part the general dip is to the south-east, at angles varying from 5° to 15°. The vertical joints bear 25° N.W. and S.E., another set being nearly E. and W., and all the caverns have one or other of these directions when not interfered with by faults. The composition of the limestone varies from 98 per cent. of carbonate of lime near Goldmire to 89 per cent. at Haume, and the average specific gravity is about 2.72. Sections are given showing how the carboniferous limestone varies at Furness, Cleator Moor, and Cocker-mouth.

In the second part of the paper the deposits are divided into the vein-like, the dish-like, and the irregular-shaped; bed-like deposits not being characteristic of the district owing to the rocks being everywhere of the same character. In the vein-like deposits, which include some of the most important in the district, there is a general narrowing downwards notwithstanding the great variations in their width. The one at Lindal Moor is perhaps the finest of this class, being worked for 1000 yards in a direction N. 25° W. Its breadth is very variable from a few inches to 30 yards, due to the irregularity of the hanging-wall, the footwall being regular. The bottom seems to have been reached at the north end at a depth of between 60 and 70 fathoms; it lies alongside a fault. Similar deposits generally under similar conditions occur at Stank and at Yarlside.

The dish-like deposits are the most numerous, and they occur just below the drift. The Park deposit, which is the largest of this or any other class, is very irregular in form. It is about 360 yards long E. and W., and 260 yards N. and S., and is overlain by a drift of an average thickness of 10 fathoms. The ore extends to at least 83 fathoms from the surface downward. Although the basin contains large quantities of sand and clay yet it holds an enormous deposit of hematite, all others being much less. Of the irregular-shaped deposits the one at Askam is the only good sample, at one part it is immediately below the surface, and at another it is entirely surrounded with limestone. The author dissents from Mr. Greenwell's opinion that it is a bed-like deposit, and that there is an unconformity in the limestone above and below the ore. In their nature the deposits differ from those near Whitehaven, inasmuch as they are not interbedded with shale to anything like the same extent; they are, however, frequently interrupted by large masses of stone connected in some way with the main limestone. Some of the dish-like deposits have masses of red and white sand in them; in these and in some of the vein-like deposits masses of red, yellow, and white clay are met with, which when hard is called "hunger." This generally surrounds the ore, and separates it either from the limestone or the sand and other foreign substances. This clay, which sometimes contains vegetable matter, even permeates the fissures and fills the irregularities of the limestone casing.

As to the age of the deposits the author agrees with Professor Phillips as far as West Cumberland is concerned, considering them to belong to the early permian age, and in the Furness district there are no indications to show that the deposits date from a different period. With regard to the origin of the deposits, upon which there is much diversity of opinion, he considers that the source of the ore was volcanic, and that they have been formed by replacement from

the action of an aqueous solution of either perchloride of iron or of bicarbonate of iron, and although the bicarbonate solution seems at first sight to be the one that would most readily account for the volume of hematite found in the cavities, yet the author considers that the deposits were more probably formed by the perchloride (or oxychloride) of iron which was emitted from below in a gaseous condition and dissolved in the water circulating through the rocks; and as regards the Furness district the formation seems to indicate that Haume would be the centre from which such emanations would most probably flow, as it is in that neighbourhood where the deposits are the most frequent.

PROTECTION FROM FIRE—ASBESTOS FIRE-PROOF PAINT.

A perfect demonstration of the practicability of rendering combustible materials absolutely unflammable was given on the vacant piece of ground in Whitehall Place, Thames Embankment, on Wednesday afternoon by the United Asbestos Company, of Queen Victoria-street. A large number of gentlemen witnessed the exhibition, among whom were Sir J. McGarrell Hogg, M.P., Chairman of the Metropolitan Board of Works; Mr. Shepherd, Chief of the Building Act Committee; Mr. Simmons, second officer of the Fire Brigade; Major F. A. Marindin, R.E.; Sir G. Elliott, Bart., M.P.; Sir Charles du Cane; Mr. John Whichcord, F.S.A.; Col. Moncreiff; Mr. D. J. Jenkins, M.P.; Capt. Bedford Pim; Mr. Charles J. Phipps, F.S.A.; Mr. Allport, the manager of the company; Mr. Fisher, the secretary; and several gentlemen connected with the management of theatres. Two exactly similar wooden structures representing the stage and auditorium of a theatre were erected; but whilst one was finished in the usual way the other was coated with the company's patent asbestos fire-proof paint, and furnished with an asbestos curtain. In the space in the roof, representing the carpenters' shop of our theatres and the usual source of danger in that class of building, an abundant supply of shavings saturated with paraffin oil was placed, care being taken that the quantity and character of the combustible should be the same in both cases. Fire was applied to the two structures simultaneously, so that the relative effect could be accurately judged of. The mass of fire was certainly greater than would have to be dealt with under ordinary circumstances; but as the demonstration was arranged for the special information of the Metropolitan Board of Works, the company were naturally desirous that the test of their paint should be of the severest character. The shavings blazed admirably, the result being, so far as the unprotected structure was concerned, that in less than 15 minutes there was scarcely a beam or board that was not in flames, and in about 40 minutes nothing but a mass of charred embers remained for the men of the Metropolitan Fire Brigade, who were present in case of accident, to play upon and extinguish.

The contrast in the case of the structure protected with the patent asbestos fire-proof paint was very striking; not only did it refuse to ignite, great as was the mass of fire burning in the roof, but many of the visitors actually took up their position within the structure, and thus beneath one mass of fire to shield themselves from the scorching heat radiating from the burning building beside it. The roof fire in the protected building produced no injury beyond the blistering of the paint directly exposed to the flames, and when the shavings were thoroughly consumed there was little to show that any fire had been in it. The further experiments were confined to the protected building—its companion being only represented by a flaming mass, in far too heated a state to continue the competition—and were of the most crucial character. Heaps of shavings were piled upon the stage and ignited. As soon as it was fully flaming the company's asbestos curtain was dropped, when, although the flames played against it, and could be clearly seen through it, the portion representing the auditorium was so well protected that it was quickly crowded by visitors anxious to feel how cool the portions of the curtain not in actual contact with flame continued. Shavings were then thrown upon the floor of the auditorium and on the stage in front of the curtain and ignited; yet the curtain remained uninjured, and beyond similar blistering of the paint to that already referred to the structure was as sound as when the experiments commenced. It need scarcely be said that the whole of the visitors were highly satisfied with the demonstration, and unanimous in their declarations that for the prevention of fires and preservation of life and property in theatres, warehouses, and public buildings the paint and the asbestos cloth together would be all that could be needed.

But it will be obvious to readers of the *Mining Journal* that the application of both the paint and the cloth in connection with mining operations is of even greater importance to them than its use in public buildings, for not only is it desirable to secure the necessarily numerous wooden structures at surface against fire, but to render the combustible portions of the timbering and pitwork of a mine absolutely unflammable would be in the highest degree conducive to the safety from fire of all employed underground. There can be no question that largely as the company's patents have already been adopted, their development is still in its infancy.

NICKEL PLATING.—An invention, by which it is claimed an equal amount of electro-plating can be done with less electro-motive force, has been patented by Mr. J. E. CHASTER, of Manchester. It consists—1. In using the double citrate of nickel and ammonia instead of the double sulphate. 2. In new arrangement and construction of battery for electro-plating with nickel. The cells of this battery, three in number, are a modification of Daniell's, in which the zinc is placed in an inner porous cell in a half saturated solution of zinc sulphate. This cell is placed in a copper or lead cell, containing saturated cuprous sulphate solution. This solution is kept saturated by means of addition of crystals of copper sulphate added from time to time. By these means the current from the battery is constant, different from all other batteries used for nickel-plating, and further the electro-motive force of the battery is such that the solution is not decomposed, and is merely sufficient to carry over the metal from the anode to the article to be plated, and does so with the smallest amount of gas given off on the article being plated. This nickel is deposited on iron articles direct without being previously plated with copper, as it adheres firmly to the iron owing to the small amount of gas being given off whilst plating. 3. A simple arrangement of portable apparatus for nickel-plating. It consists of a box divided in two by a partition; on one side are three cells in series, on the other a tank lined with lead or simply of wood well covered with paraffin wax, in which the two anodes of nickel are suspended at each end and the cathode a simple bar across the tank, upon which the articles to be electro-plated are suspended by wires. Connection with the battery is made in the usual manner.

NEW AMALGAMATOR.—An improved amalgamator has been invented by Mr. HENRY M. JONES, of Santa Fé, New Mexico. The box is of rectangular form, and has at each of its ends inclined planes, for the purpose of keeping the quicksilver in the centre of the box. A number of pointed spikes project through the box bottom two or three inches, and are firmly fixed to the bottom. Rollers are placed transversely in the box, and journaled in its sides, that support and carry an endless belt. They are so arranged that the portion of the belt that passes over the bottom portion of the box shall be parallel with it, and at the rear end of the box shall pass parallel to the inclined part. The belt is provided with teeth, set in diagonal rows, and so arranged that they move in the interstices between the teeth in the bottom of the box, and they are firmly secured to the belt by nuts and washers. The belt extends the full width of the box, and is moved by means of power applied to one of the rollers, and as it is revolved the ore (which is fed in at the top of the box) and the quicksilver are thoroughly mixed together by the action of the teeth on the belt and in the bottom of the box, and the lumps of ore are broken up to expose them to the action of the quicksilver.

PROTECTING IRON FROM OXIDATION.—A novel method of imparting to iron, steel, and other metals, the property of inoxidability has been invented by Dr. P. de Villiers, of St. Leonard-on-Sea. It consists in coating them with a metal less readily oxidised, as gold, silver, &c.

Original Correspondence.

ORGANOS GOLD MINES.

SIR.—Our attention has been directed to a letter upon this subject signed Williams and Co., and published in last week's *Journal*. As information respecting the Organos Gold Mines may be interesting to many of your readers, we annex copy of some particulars in a brief and concise form which we have for the past month been sending to our friends and clients.

The capital of the company is 15,000*l.*, in 1*l.* shares; property, mines in United States of Colombia, South America; area, 15,000 acres; number of lodes—two now being worked, but there are many others, which may be sold to and worked by subsidiary companies; purchase of property—no purchase-money has been paid for the company's mines, which are held upon lease for 21 years at a fair royalty. The company has the right of purchasing the freehold for the sum of 20,000*l.* at any time during the term of the lease; value of lodes—the Constanza lode is reported by the manager to be worth 10 ozs. of gold to the ton, or 150*l.* per fathom, at one point, and 9 ozs. per ton at a second. Of another point the manager writes—"There is a vein in the lode 3 in. wide, which will average over 20 ozs. per ton." Others are favourably commented upon; specimens have been assayed, yielding 316 ozs. 13 dwts., 91½ ozs., 22 ozs., 9½ ozs., and 544 ozs. of gold per ton respectively. According to prospects, a yield of 3½ oz. of gold per ton would suffice to return the capital every year as dividends; a trial crushing (made before the recent discoveries) of 20 tons has yielded 31 ozs. of gold, or 1½ oz. per ton. The amount of quartz now laid open for crushing is already estimated to be worth 50,000*l.* The machinery will be completed by the end of July, so that the first remittance of gold will be made at the end of August.

A comparison, showing that the Organos, which is much richer than any of the Indian gold mines, must advance considerably to be placed on a level as regards market value with them:—

Name.	Capital.	Area of Property.	Price of shares.	Market Value of all the shares.
Devala Central	£120,000	986 acres.	3/4	£90,000
Devala Moya	200,000	2055 "	1 1/4	250,000
Indian Consolidated	400,000	Three square miles.	1	400,000
Indian Glenrock	240,000	3255 acres.	1 1/4	420,000
Indian Trevelyan	150,000	930 "	3/4	112,500
Rhodod Reef	15,000	1500 "	40s.	30,000
South-East Wymad	100,000	1500 "	3 1/2	350,000
Tanbracherry	120,000	6000 "	1 1/4	135,000

Prospective value of shares.—The possible result of working the mine is shown in the following table:—

Average yield of gold per ton of quartz.	Total annual yield from crushing 50 tons per day, say 12,500 tons.	Value of same at £3 17s. 6d. per oz.	Annual profit reckoning cost at 25s. per ton.	Dividend per share.	Value of shares at 7 years' purchase.
3/4 ozs.	9,375 ozs.	£36,328 2 6	£20,703 2 6	£1 7 6	£9 12 6
1 1/2 "	18,750 "	72,656 5 0	56,031 5 0	3 14 6	26 1 6
2 1/2 "	31,250 "	121,093 15 0	105,468 15 0	7 0 6	49 3 6
5 "	62,500 "	242,187 10 0	228,562 10 0	15 2 0	105 14 0

The prospective value of shares it will be noticed is of course merely a calculation based upon an average return of gold at the rates mentioned. It is no doubt too much to expect that the mines will yield an average of 5 ozs. of gold per ton, though such a thing is not unprecedented, and it may be well to remind your readers that according to the latest reports the whole of the quartz extracted from the drives during the last four months will average rather over 4 ozs. to the ton. CHAS. RUSSELL AND CO.

Change-alley, Aug. 11.

THE CARTA PARA GOLD MINING COMPANY.

SIR.—The following passage appears in your report of the ordinary general meeting of the Carta Para Gold Mining Company held at its offices on Monday, July 31:—

Mr. BERMAN: Where did Prof. Vazie Simons find the gold? Mr. HAMILTON: I do not know. The only traces I could find of working was that lots of water had been run over the lode. He believed that Professor Vazie Simons was never on the Carta Para property at all.

My board instruct me to inform you that the estate of 1800 acres, now known as the "Simon's Reef" was, at the time of Professor Vazie Simons' report thereon, more than two years since, called the "Carta Para," and has always been and is now so entered in the Government Map and Ordnance Survey; while the subsequent arbitrary subdivision of the Simon's Reef Estate into six distinct properties, of which the Carta Para Company's estate was to be 300, or one-sixth part of the 1800 acres, was made only last year in London, and, consequently, long after his visit to the property in India; and that such visit to some portion of the property is an undoubted and unquestionable fact, whether the professor was ever on that particular subdivision of the estate recently granted on lease to the Carta Para Company or not.

The directors feel it to be due to Professor Vazie Simons thus to correct the erroneous impression which Mr. Hamilton's unqualified statement is calculated to produce in the minds of shareholders and of the public. F. S. MEIKLEHAM, Secretary.

Cannon-street, Aug. 11.

PYRITES.

SIR.—Who and what are shareholders in gold mining companies to believe? The manager of Phoenix tells us one day that he has successfully worked pyrites in New Zealand. A few days later comes report from the Kapanga Mine of New Zealand, and the Chairman says they have applied to their manager to know how much pyrites and tailings he has, with a view to getting it home to be treated—a plan that cannot pay. Why is all this? It simply means that up to the present moment there is no plan, and none of these gentlemen, who though they understand "tubbing" and "cradling," have the smallest knowledge of the higher branches of metallurgy or chemistry. All the processes hitherto tried have been chemicals, and therefore too expensive for practical work for dealing during the present generation with the thousand of tons waiting to be treated. While I write it is whispered that some of our leading scientific men have a process completed which may rival the Bessemer or Martin-Siemens for steel. I also hear of another process on show, but that has been known in Hungary, the Tyrol, and I suspect in Swansea for many years, and is far too expensive to use in bulk—say, to turn over 30, 40, or 50 tons in 24 hours. It is a pretty toy, but no more. What is wanted is a good practical process, and I hope ere long we shall get it, for it is sorely wanted. I am told the toy process I refer to has been tried at the Wicklow Mines. If so it has reduced the shares from 1*l.* 3*d.* and 1*l.* 6*d.* to 12*s.*, as that appears to be their present price. Probably it may be termed a reduction process. City, Aug. 11.

OKEL TOR AND COTEHELE COMPANIES.—The meetings for confirming, or otherwise, the resolutions for the amalgamation of these companies are convened for Aug. 22. The capital of the Okel Tor Company is to be increased by the creation of 20,000 shares of 1*l.* each, and the board of directors will be authorised to issue 19,877 of these shares, as fully paid up, in accordance with the provisions in that behalf contained in the agreement with the Cotehele Company. The company, or persons to whom these 20,000 new shares shall be issued, will, as from the issue of such shares, be entitled to be present at, and vote at, any general meeting of the Okel Tor Company, notwithstanding the provisions contained in the articles that no member shall be entitled to be present, or to vote at any meeting unless he has been possessed of the share in respect of which he claims to vote, for at least three months previously. The balance receipts have been very much curtailed by the necessity of employing the labour on unproductive surface and other work. The new shaft is now within 4 fms. of the 50, to which level Capt. Bulford expects to be down in a fortnight, when the skip-rod from surface will be at once put in to enable us to draw from that level. The slopes in the western part of the mine are improving again, so we believe we may fairly expect a steady increase in the return. In the beginning of the present year a satisfactory contract was entered into for the sale of all our make of powdered arsenic till the end of next December. The demand for white lump arsenic has not been brisk lately, but will probably revive. The liabilities

amount to 413*l.* 11*s.* 5*d.*, against current assets 304*l.* 16*s.* 5*d.*, leaving a deficit of 833*l.* 15*s.*, to meet which, and to provide funds to carry on the work till the eastern shaft renders their large reserves available it is proposed to issue mortgage debenture bonds.

PROVINCIAL STOCK AND SHARE MARKETS.

CORNISH MINE SHARE MARKET.—Mr. J. H. REYNOLDS, stock and sharebroker, Redruth (Aug. 10), writes: The share market for the last week has been quiet, with a little demand for East Pool, South Crofty, Dolcoath, Killifreth, West Kitty, Cook's Kitchen, and West Seton. A good demand has also sprung up for Wheal Uny owing to the improved prospects of the mine, and close firm at quotations. A call of 10*s.* per share was made at Wheal Prussia yesterday, and 25*s.* at West Frances to-day. Subjoined are closing prices:—Blue Hills, 1*l.* 10*s.*; Carn Area, 11*s.* 12*d.*; Cook's Kitchen, 38*s.* 3*d.*; Dolcoath, 75*s.* 10*d.*; East Pool, 57*s.* 10*d.*; West Seton, 10*s.* 12*d.*; Killifreth, 5*s.* 6*d.*; Marke Valley, 5*s.* 6*d.*; Mellanear, 4*s.* 10*d.*; New Kitty, 2*s.* 6*d.*; North Busy, 1*l.* 10*s.*; North Herodfoot, 7*s.* 6*d.* to 10*s.*; North Penstruthal, 3*s.* 4*d.*; Pen-an-drea, 3*s.* 4*d.*; Phoenix, 2*s.* 6*d.*; South Condurow, 8*s.* 4*d.*; South Crofty, 12*s.* 12*d.*; South Frances, 12*s.* 12*d.*; Tincroft, 11*s.* 12*d.*; Tregembo, 3*s.* 4*d.*; West Basset, 10*s.* 10*d.*; West Frances, 8*s.* 4*d.*; West Kitty, 14*s.* 14*d.*; West Peavor, 13*s.* 13*d.*; West Polbrean, 1*l.* 10*s.*; West Pollice, 4*s.* 4*d.*; West Seton, 19*s.* 20*d.*; Wheal Agar, 18*s.* 18*d.*; Wheal Basset, 9*s.* 9*d.*; Wheal Grenville, 10*s.* 10*d.*; Wheal Jane, 3*s.* 3*d.*; Wheal Kitty, 1*l.* 10*s.*; Wheal Peavor, 8*s.* 8*d.*; Wheal Uny, 4*s.* 4*d.*

—Mr. S. J. DAVEY, mine sharedealer, Redruth (Aug. 10), writes:—Our market has been quiet this week, not much business has been done, and fluctuations have been unimportant. To-day market is decidedly slow. Subjoined are the closing quotations:—Blue Hills, 1*l.* 10*s.*; Carn Area, 11*s.* 12*d.*; Cook's Kitchen, 38*s.* 3*d.*; Dolcoath, 75*s.* 10*d.*; East Pool, 57*s.* 10*d.*; West Seton, 10*s.* 12*d.*; Killifreth, 5*s.* 6*d.*; Marke Valley, 5*s.* 6*d.*; Mellanear, 4*s.* 10*d.*; New Kitty, 2*s.* 6*d.*; North Busy, 1*l.* 10*s.*; North Herodfoot, 7*s.* 6*d.* to 10*s.*; North Penstruthal, 3*s.* 4*d.*; Pen-an-drea, 3*s.* 4*d.*; Phoenix, 2*s.* 6*d.*; South Condurow, 8*s.* 4*d.*; South Crofty, 12*s.* 12*d.*; South Frances, 12*s.* 12*d.*; Tincroft, 11*s.* 12*d.*; Tregembo, 3*s.* 4*d.*; West Basset, 10*s.* 10*d.*; West Frances, 8*s.* 4*d.*; West Kitty, 14*s.* 14*d.*; West Peavor, 13*s.* 13*d.*; West Polbrean, 1*l.* 10*s.*; West Pollice, 4*s.* 4*d.*; West Seton, 19*s.* 20*d.*; Wheal Agar, 18*s.* 18*d.*; Wheal Basset, 9*s.* 9*d.*; Wheal Grenville, 10*s.* 10*d.*; Wheal Jane, 3*s.* 3*d.*; Wheal Kitty, 1*l.* 10*s.*; Wheal Peavor, 8*s.* 8*d.*; Wheal Uny, 4*s.* 4*d.*

—Messrs. ABBOTT and WICKETT, stock and share brokers, Redruth (Aug. 10), write:—A moderate business has been done this week in Cook's Kitchen, Dolcoath, East Pool, West Kitty, West Seton, and Wheal Uny. To-day the market is firm, and in most instances shares close at their best; 25*s.* call at West Frances and 6*s.* dividend at South Condurow. Subjoined are the closing quotations:—Blue Hills, 1*l.* 10*s.*; Carn Area, 11*s.* 12*d.*; Cook's Kitchen, 38*s.* 3*d.*; Dolcoath, 75*s.* 10*d.*; East Pool, 57*s.* 10*d.*; West Seton, 10*s.* 12*d.*; Killifreth, 5*s.* 6*d.*; Marke Valley, 5*s.* 6*d.*; Mellanear, 4*s.* 10*d.*; New Kitty, 2*s.* 6*d.*; North Busy, 1*l.* 10*s.*; North Herodfoot, 7*s.* 6*d.* to 10*s.*; North Penstruthal, 3*s.* 4*d.*; Pen-an-drea, 3*s.* 4*d.*; Phoenix, 2*s.* 6*d.*; South Condurow, 8*s.* 4*d.*; South Crofty, 12*s.* 12*d.*; South Frances, 12*s.* 12*d.*; Tincroft, 11*s.* 12*d.*; Tregembo, 3*s.* 4*d.*; West Basset, 10*s.* 10*d.*; West Frances, 8*s.* 4*d.*; West Kitty, 14*s.* 14*d.*; West Peavor, 13*s.* 13*d.*; West Polbrean, 1*l.* 10*s.*; West Pollice, 4*s.* 4*d.*; West Seton, 19*s.* 20*d.*; Wheal Agar, 18*s.* 18*d.*; Wheal Basset, 9*s.* 9*d.*; Wheal Grenville, 10*s.* 10*d.*; Wheal Jane, 3*s.* 3*d.*; Wheal Kitty, 1*l.* 10*s.*; Wheal Peavor, 8*s.* 8*d.*; Wheal Uny, 4*s.* 4*d.*

—Mr. M. W. BAWDEN, Liskeard (Aug. 10), writes:—The mining market presents a steady appearance although the amount of business transacted has been limited. Prices appear to be well maintained. Bedford United, East Pool, South Crofty, and Wheal Uny, principally in demand, the latter advanced to 5 buyers. Phoenix United Mines sold yesterday 45 tons of black tin at 59*l.* 10*s.* per ton, the produce of four weeks' working. At Wheal Prussia Mine meeting held yesterday the accounts showed a loss on the five months' working of 346*l.* 13*s.* 11*d.*, a call of 10*s.* per share was made. Subjoined are the closing quotations:—Bedford United, 2*s.* 6*d.*; Carn Area, 11*s.* 12*d.*; Cook's Kitchen, 38*s.* 3*d.*; Dolcoath, 75*s.* 10*d.*; East Pool, 57*s.* 10*d.*; West Seton, 10*s.* 12*d.*; Killifreth, 5*s.* 6*d.*; Marke Valley, 5*s.* 6*d.*; Mellanear, 4*s.* 10*d.*; New Kitty, 2*s.* 6*d.*; North Busy, 1*l.* 10*s.*; North Herodfoot, 7*s.* 6*d.* to 10*s.*; North Penstruthal, 3*s.* 4*d.*; Pen-an-drea, 3*s.* 4*d.*; Phoenix, 2*s.* 6*d.*; South Condurow, 8*s.* 4*d.*; South Crofty, 12*s.* 12*d.*; South Frances, 12*s.* 12*d.*; Tincroft, 11*s.* 12*d.*; Tregembo, 3*s.* 4*d.*; West Basset, 10*s.* 10*d.*; West Frances, 8*s.* 4*d.*; West Kitty, 14*s.* 14*d.*; West Peavor, 13*s.* 13*d.*; West Polbrean, 1*l.* 10*s.*; West Pollice, 4*s.* 4*d.*; West Seton, 19*s.* 20*d.*; Wheal Agar, 18*s.* 18*d.*; Wheal Basset, 9*s.* 9*d.*; Wheal Grenville, 10*s.* 10*d.*; Wheal Jane, 3*s.* 3*d.*; Wheal Kitty, 1*l.* 10*s.*; Wheal Peavor, 8*s.* 8*d.*; Wheal Uny, 4*s.* 4*d.*

MANCHESTER.—Messrs. JOSEPH R. and W. P. BAINES, share brokers, Queen's Chambers, Market-street (Aug. 10), write:—The actual holiday of Monday has curtailed the sum of the transactions, but the several influences of splendid weather, and a decidedly more encouraging view taken of political affairs, has lent a degree of strength to the markets, which although not swelling the number of dealings to any great extent, has induced a buoyant tone in markets generally, but more especially in the leading speculative and investment stocks. Egyptian stocks show a distinct advance on the week, but at close to-day are rather under best points reached without, however, any apparent cause, and most probably from realisations. The announcement of earnings on the foremost railways for the week have come out well, which has assisted the tendency to hardening prices. Business in general commercial securities is far from brisk, and changes in quotations are irregular, showing no decided balance in either direction, the feeling being describable as dull but fairly steady.

BANKS.—Several lots have changed hands, and except in one or two instances values realised show a little, if any, falling off in rates. Union Bank of Manchester have been doing a few times declining prices. The following are the closing prices:—Commercial Union, 1/2; Lancashire, 1/2; Liverpool and London and Globe, 1/2; and Thames and Mersey Marine, 1/2. Lower: British and Foreign Marine, 1/2; Queen, 1/2; Sea, 1/2; and Positive Life, 3d.

COAL, IRON, &c., MINING.—Nothing of any consequence going on in this market: beyond a few solitary transactions these shares have been quite neglected. Prices, except in a few cases, are without material alteration. Bolckow fully paid are unchanged, the 12*l.*, however, are 1/4 down on sellers' figures, whilst buyers' quotation remains without alterations. West Cumberland Iron, &c., are similarly altered, sellers down 1/4, buyers are a week ago, Eves a little lower. Higher: Staveley Coal, &c., 1/4; Park Gate Iron, &c., 1/4; Rio Tinto, 1/4; Indian Phoenix Gold, 1/4. Lower: Tharisa Sulphur, &c., 1/4; Telegraph Construction and Maintenance, 1/4; Ebbw Vale, 1/4; and Canadian Copper, &c., 1/4.

COTTON, SPINNING, AND MANUFACTURING are still quite dull, but without many instances of further reduction. Figures remain pretty much the same as a week ago, with some exceptions; but as buyers are scarce very little business is brought about. —TELEGRAMS are fairly steady, but with little passing therein. Anglos of all issues are better, the Ordinary 1/4, Deferred 1/4, and Preferred 1/4. Globe Telegraph and Trust, Prof. are also 1/4 higher, but Direct United States (Cables and Easterns) are each 1/4 lower. —TELEPHONES: Lancashire and Cheshires have had a falling market, with only a moderate number of dealings reported, and they finish exhibiting a fall of 2*s.* per share. Uniteds, too, are 1/2 lower. —CORPORATION STOCKS, &c., are generally firm, but hardly so strong as of late. Oldham Corporation Stocks are credited with a rise of 1/4, in the face of a further issue of stock. Manchester Corporation Four per Cent. Stock, which for some time past have moved systematically upward, and have been done as high as 11*s.*, are rather easier, having changed hands at 11 1/2 (old lot) and 12 1/2, although quotably reducing 1/4. —CANNALS are having no movements to chronicle, excepting an advance of 1 in Rochdale shares. —MISCELLANEOUS shares are dull, but on the whole tolerably steady, there being very few alterations in prices. Manchester Royal Exchange Buildings are 2 higher; Barlow and Jones (Limited) are in demand at full rates, and exhibit a rise of 1/4; Bodegas sellers' figure shows a decline, but buyers' price is without change.

RAILWAYS.—The Egyptian news is considered more favourable, weather is good, and the London and North-Western dividend announcement encouraging. These influences together and severally have had a beneficial effect; prices are consequently much better, especially the heavy lines. Caledonians to-day have been freely bought, and show a decided recovery. North British are firmer, as also are North Staffords, both of which, being cum dividend, are looked upon with favour. Brighton A stock have as usual fluctuated largely, and on balance are down about 1. Canadians have gained generally, Grand Trunk meeting to-day again confirming the arrangement scheme. Americans have maintained their ground fairly, the dulness being largely attributable to the absence of business in New York.

SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, sharebroker and ironbroker, (Aug. 10), writes:—During the past week business has been quiet, owing to holiday influences, but the tendency of prices is upwards, as the weather is favourable to harvest prospects, and the news from Egypt more reassuring. The Board of Trade returns issued for July also compared satisfactorily. The money market is again firmer.

In shares of coal, iron, and steel companies the principal business has been in Marbles, which are firmer at 6 1/2 to 6 3/4. In the Scotch pig-iron market the price of warrants declined to 50*s.* 3*d.* on realisations, but has since recovered to 51*s.* 6*d.*, as the trade returns are good; shipments are increasing, and stocks decreasing. The first meeting of the reconstructed Benhar Coal Company has taken place, and directors have been elected; it appears the purchase money is to be paid as follows—30,000*l.* in November, when the company will get possession, and equal amounts in February and June, and the balance in October, 1883. The preference shares have been subscribed for to the extent of about 10,000*l.*, and the ordinary B. shares are all taken up. Allamias are at 21*s.*; ditto, bonds, 7; Chapel House, 10*s.* to 20*s.*; Cardiff and Swansea, 20*s.* to 30*s.*; and Shot's Iron, 50.

In shares of foreign copper and lead concerns the principal movement is a

decline of 9s. 6d. on Huntingtons, which touched 19s. on the issue of their report for last year, from which it appears their position is not yet so satisfactory as was hoped for. The result is ascribed to reductions in the valuations, and a falling off in the output. In these circumstances a new manager has been appointed, who gives a very encouraging report on the extent and value of the mines, and when the mines are thoroughly developed, and the necessary economical ore-dressing machinery introduced, a profit is expected on the working. To do this, however, additional capital is necessary, and 25,000 10 per cent. preference shares of 1l. each are recommended to be issued. Steps will be taken to cancel the liability for the further call in the ordinary shares by reducing the capital by the amount unpaid, and perhaps by a further amount. Tharls remain at 40s. 4d. to 40s. 6d.; Mason and Barry, 15s. 10d. to 16s. 6d.; San Pedro, 5s. 6d. to 7s. 6d.; Pannell, 6s. 6d. to 7s. 6d.; Santa Cruz, 2s. 6d. to 3s. 6d.; San Pedro, 5s. 6d. to 7s. 6d.; and York Peninsula (pref.), 15s. to 20s.

In shares of home mines prices are steady, but business is still quiet. Glasgow Caradon remain at 15s. 6d.; their next sale will be 160 tons on the 17th inst., which compares with 140 tons in June last, and 140 tons in September, 1881, there having been no sale on August last. In previous years the sales in August ranged from 150 to 250 tons. New West Grogwinion offered. Bodidris are at 2s.; Bell Veau, 10s.; Bedford United, 45s.; Bwlch United, 15s. to 25s.; Carn Camborne, 10s.; Caron, 2s.; Drakewalls, 5s. to 10s.; East Craven Moor, 2s. 6d. to 7s. 6d.; East Caradon, 10s. to 15s.; East Wheal Rose, 7s. 6d. to 10s.; Great Holway, 80s. to 90s.; Great Lacey, 17 to 18; Grogwinion, 5s. to 15s.; Herodsfoot, 2s. 6d. to 3s. 6d.; Indian Queens, 3s. 6d.; Longford, 5s. to 7s. 6d.; Mount's Bay, 5s. to 7s. 6d.; New Kitty, 5s. to 60s.; Old Oulcombes, 6d. to 1s.; Old Shepherds, 5s. to 7s. 6d.; Pennant, 52s. 6d.; Parka, 3s. 6d.; Pen-y-Osred, 10s.; Rhosmorris, 55s. to 65s.; Treavean, 5s. to 7s. 6d.; Tankerville, 5s. to 6s.; Tamar, 5s. to 7s. 6d.; Tin Hills, 10s. to 12s. 6d.; Wheal Rose, 2s. 6d. to 5s.; West Phoenix, 7s. 6d. to 10s.; West Holway, 15s. to 20s.; West Kitty, 14 to 14½; Wheal Fortune, 10s. to 15s.; Wheal George, 15s. to 20s.; Wheal Luskay, 1s. 3d. to 2s. 6d.; and Wheal Owles, 6 to 8.

In shares of gold and silver mines there is not much business. Akankos are at 5s. to 7s. 6d.; Central Wynaad, 7s. 6d. to 12s. 6d.; Chile, 7s. 6d. to 12s. 6d.; Crooke's Mining, 15s.; Gold Hills, 7s. 6d. to 10s.; Indian Consolidated, 13s. 9d. to 15s.; Indian Kingston, 4s. to 6s.; Kohinoor and Donaldson, 15s. to 20s.; Mysore Reef, 2s. 6d. to 3s. 6d.; Mysore, 10s.; New Callao, 5s. to 10s.; New Gold Run, 3s. 6d.; ditto (pref.), 4s. 6d.; Nouveau Monde, 5s. to 7s.; Organos, 80s. to 85s.; Ruby, 35s. to 37s. 6d.; Silver Peak, 3s. 9d. to 6s. 3d.; Simon's Reef, 6d. to 1s.; Victorine, 10s. to 15s.; West Frontino, 2s. 6d. to 5s.; and Wynaad District, 2s. 6d. to 5s.

In shares of oil and miscellaneous companies there has been more business doing. Uphalls are steady, and at their meeting it was decided to issue 20,000l. new capital, as 11,000l. had been spent in new retorts, plant, &c.; a motion to appoint a committee of investigation was not seconded. The meeting of Lawes' Chemical Company will be on Aug. 25. Newcastle Chemicals, 25s. to 30s.; and Neuchatel Asphalt (ordinary), 20s. to 30s.

EDINBURGH.—Messrs. THOMAS MILLER and SONS, stock and share brokers, Princes-street (Aug. 9) write:—The railway market has been quiet since last report. The London and North-Western dividend, at the rate of 7 per cent. against 6½ a year ago, has sent the stock up about 3½. To-day the market has been firm, Caledonian, on the weekly traffic, showing an increase of 3245l. has risen from 101½ to 102½. Great North of Scotland and Highland show no important change since last Wednesday. Several descriptions of preference stocks have been offered at prices. Canadians have been in some demand. Grand Trunk stocks have risen from ½ to 1, and Great Westerns are ¾ better. Americans have fluctuated a good deal, but with a few exceptions they closed to-day much about the price at which they did a week ago. Investment Companies shares have shown few changes, although there has been some disposition to sell at present quotations. Huntingdon copper shares have fallen heavily on the report which shows that more capital will be required to carry on the mines. The price has gone from 31s. 6d. to 23s. Clyde Coal have fallen from 33s. to 30s.; Canadian Copper from 22s. to 21s. 6d.; Burntisland Oil shares have risen from 10½ to 10¾. In banks, British Linen has risen from 297 to 298, Caledonian from 47 ¼ to 47 ½, 6s. 3d., Royal from 213 to 213½; while Clydesdale shares have declined from 23½ to 23¼, Commercial from 53 to 52½, Union from 24 to 23½. Edinburgh Tramways are 10s. lower, at 12½.

IRISH MINING AND MISCELLANEOUS COMPANIES SHARE MARKET.

CORK.—Messrs. J. H. CARROLL and SONS, stock and share brokers, South Mall (Aug. 9) write:—Markets were good to-day on continued fine weather, and Great Southern advanced to 114½. Limericks were also done at 30½. No change in Midlands. Munster Banks changed hands at 7, and Hibernians at 34½. No change in Provincials. National remain 23½ to 23¾. Cork Steam Packets were done at 10½, and Lyons shares at 5. Dalys were offered at 2½, and Goudings asked for at 8½. River Steamers changed hands at 14½, and Breweries were enquired for at 5½.

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS &c
1, ST MICHAEL'S ALLEY CORNHILL, LONDON

Mine meetings in London are very different affairs from mine meetings in Cornwall. At the former shareholders attend to criticise, question, and sometimes to find fault, and then go hungry away. At Cornish meetings the first thing noticed upon entering the count-house is a fine appetising and suggestive aroma from the kitchen, and it pervades the whole assembly from first to last; the accounts, which are read out, seem to an outsider a secondary affair, and are seldom, we fear, thoroughly looked into or audited as they ought to be. There is too often a longing to get over business, and to take the words of those in authority for the accounts, especially if they are nicely dressed and spiced with a dividend, and to adjourn to the fine "spread" prepared for "one and all" on "owners' account." For years we stood alone in the *Mining Journal* and elsewhere in condemning it wherever we noticed the system of keeping back costs and liabilities, and of paying dividends when mines were in debt; but the system was kept up at certain mines (and even at such a mine as Dolcoath), and then when troubles came with the bank those who had been induced to buy shares at high prices on the faith of dividends found themselves mulcted in heavy calls to pay debts not contracted in their time, and kept from their knowledge when they purchased. Such things as these could not happen at a London meeting, where a committee appointed for the purpose of auditing and looking into the accounts every month, places before the shareholders every item connected with their financial position in the clearest and simplest form possible. The accounts of Wheal Crebor, Prince of Wales, &c., may be taken as specimens of what such accounts ought to be. The first statement is a cash account showing every receipt and payment clearly set forth since the previous meeting, with the actual cash in hand.—2. Profit and loss account, showing actual sales (each lot specified) of ores and receipts of all kinds on one side. The costs of every kind debited on the other, the balance being actual profit or loss, as the case may be. No 3 statement showing the actual liabilities and assets up to the day of meeting. Thus, at the last Crebor meeting on July 13 every known liability was charged up to July 8, including an extra month's costs paid on July 6; and we venture to assert that if all mines would pursue this system which we have long adopted in all with which we are officially connected there would be more confidence in mining, and more speculation as well.

There is, we know, a dislike to "calls," and we do not like them ourselves; at the same time there is something to be said even on this head. Say that a mine requires a capital of 12,000l. to bring it into a profitable state, and is in 12,000 shares of 1l. each, fully paid. Shareholders have to pay up all this money at once, and if when it is expended results are not attained, and appearances are not favourable, there may be difficulties in the way of getting more money, and the mine is in consequence wound up, when a small and further outlay might possibly result in success. On the other hand, take a mine like Prince of Wales, in 12,000 shares; 7s. 6d. was paid down, and as more was required calls of 1s. to 2s. per share were made until altogether 17s. per share had been called up, and should 1l. per share not prove sufficient, there will be no difficulty in getting what more is required, and a capital of 12,000l. or even of 15,000l. is not much to pay good interest upon in case of success.

The Crebor ore assays as follows—97 tons 6½ per cent., 96 tons 7, 94 tons 6½, 92 6, 91 6½, 71 tons 5½ per cent.

We shall at all times be happy to explain to correspondents the financial position of Cornish mines as far as we are able to do so.

The lode in winze at Great West Chiverton is 3½ feet wide, with a leader of ore in the south wall 9 inches wide, producing good stones of lead ore and looking like further improvement.

The engine has gone to work at Langford and is now pumping 800 gallons of water per minute; the 10 fathoms level may be reached the early part of next week.

All the shares in North Blue Hills have been taken up, and we expect very shortly to find tin in the adit.

THE GÜLCHER DYNAMO-ELECTRIC MACHINE.

The superiority of the Gülicher dynamo as compared with some of its rivals has, upon several occasions, been pointed out in the *Mining Journal*, and it has been stated that the object in view—the reduction of the injurious heating of the wire coils, and thereby the production of an increased useful effect in the machine—had been obtained, so that more precise details of Mr. Gülicher's arrangement will be generally acceptable. It may be explained that the inductor rotating between the magnetic pole surfaces consists of a ring, the core of which is formed of separate magnetically insulated strips (Lamellen) of soft iron, in order to facilitate the change of the magnetic poles during the rotation of the ring, and thus to reduce the heating of the ring itself to a minimum. The section of the ring differs materially from those of other machines, being either of a wedge shape—that is, triangular—or of a wedge shape pointed square or rectangle. This form not only permits of a convenient and solid fixing of the inductor, but also allows the wire bobbins wound round such a ring to be exposed to the inducing action of the magnetic pole surfaces from all sides, and thereby completely obviates the production of heat which, in other machines, is formed in the passage of the electric current through the unexcited wire parts. The magnetic pole surfaces are formed in all their parts of a U-shaped section, and encloses the rotating ring in such manner that the legs of its cross section project out on both sides over the wedge-shaped points of the section of the ring, and the latter is thus exposed on all sides to their inducing action.

It is preferred to give to the ring a complete wedge shape—that is a triangular section; the cross section of the magnetic pole surfaces is also altered accordingly, so as to take the form of an isosceles triangle with its point cut off in order to fit close to the triangular shape. In that case, however, such a wedge shaped or pointed wedge shaped section is given to the magnetic pole surfaces that they completely enclose the section of the ring, and thereby act by induction on all parts of the wire bobbins rotating between them. Although this peculiar form of the rotating inductor and of the magnetic pole surfaces enclosing it, one of the most disturbing sources of heat and one materially prejudicing the useful effect of the dynamo-electric machine is avoided, the heating of the iron core of the rotating ring still remains to be overcome, as the construction of the same out of separate wires or strips (Lamellen) does not suffice to prevent this heating completely. As besides this the wire bobbins are wound direct on to the core of the ring they likewise become gradually heated by the communication of heat from the core of the ring, whereby they oppose a greater resistance to the passing electric currents, and thus further prejudice the effect of the machine.

By a simple mechanical arrangement the iron core of the ring and the wire spools round it are continually cooled, and the loss of effect just mentioned is reduced to the minimum. The wire bobbins are not wound radially, as in other systems, but parallel. The radial interspaces produced by this method of winding are filled up with wooden wedges which reach on both sides as far as the outer periphery of the rotating ring and are fastened with copper rivets to the iron core. These wooden wedges form at the circumference of the ring with the wire bobbins laying between them a large number of chambers or paddles (Schaufel), which by the rotation of the ring between the magnetic pole surfaces enclosing it, continually draws in cold air from one side and force it out again warmed at the other, thus acting like a ventilator or fan, producing mechanically a strong current of air for the cooling of the rotating inductor, which again allows a greater speed to be given to the rotating ring.

This ventilator-like cooling of the rotating ring may also be so effected that the above mentioned wooden wedges may be wholly omitted, and instead thereof narrow projections may be arranged at the circumference of the ring between which projections the wire bobbins may be wound. In this case the wires of the bobbins themselves form pallets or paddles at both sides of the ring which produce by their rotation a strong current of air for cooling the wires. The construction of the other details of the machine offers no material novelty. It only remains to remark that in consequence of the great useful effect which may be obtained by the use of these improvements dynamo-electric machines furnished with them may be used not only for the production of electrical currents for electric lighting and the electro-deposition of metals, but also for the transmission of power to great distances.

CONVERSION OF IRON INTO STEEL.

Some improvements in converting iron into steel by subjecting it to the action of gases, has been invented by Mr. JOHN DATE, of Montreal. The iron, crude or manufactured, of any shape, in greater or less quantities, is introduced in a cold state into a heated oven, not airtight, but sufficiently close to retain gas under a natural pressure, and which gas may be generated within the oven by the introduction of charcoal and fluid hydrocarbon; the oven is heated to a sufficient degree to heat the iron to be converted into steel to a few degrees below the point of fusion, and the heat maintained during the process of conversion, which will take, for small bars and shapes, 20 minutes, and for ordinary sized bars and rails 20 hours, more or less.

When the gasses are not generated within the oven, they may be generated separately or combinedly outside, and allowed to flow therein by natural circulation through a conducting pipe. When the gasses are generated within the oven the hydrocarbon fluid is fed thereto through conducting pipes, and the charcoal supplied before or after heating the oven. The invention is also applicable to the hardening of steel which is deficient in carbon, whereby a coating of hard steel may be given to Bessemer steel bars, and frogs for railways, and to ploughshares, and other shapes of iron or steel of a mild quality. The invention is likewise adapted for the manufacture of edge tools by casting or forging the shapes of iron, then carbonising them.

HUNTINGTON COPPER AND SULPHUR COMPANY.

The statement of accounts prepared for presentation at the meeting on Wednesday next shows a net loss on the company's operations for the 12 months ended April 30 of 4634l., and a balance of liabilities over assets of 66,206l. 17s. 2d. The directors in their report express their regret that the position of the company is not as yet so satisfactory as they had reason to hope it would be. Part of the loss shown in the accounts is caused by a reduction in valuations made by the new superintendent of the works, which has been given effect to in part, and by exceptional charges consequent upon the changes that have taken place during the year. The chief cause, however, has been a diminished output from the mines, instead of an increase as was expected. At the close of the previous year the estimates of the output given by Captain Whyte led him to hope that the output would be sufficient for the mine to keep the smelting works profitably employed. Captain Whyte's estimates, however, greatly to your directors' disappointment and annoyance, were not realised, and it became a very serious question what, under these circumstances, should be done. After very anxious deliberation, your directors decided on appointing another person to take charge of the mines, and after making most minute enquiries they appointed Captain Wm. Nance, who was certified to be a practical miner of great ability and large experience, and one on whose opinion the utmost reliance might be placed. Captain Nance was instructed, in the first place, to report to the directors his candid unbiased opinion as to the mines, and after he had thoroughly examined the same he sent home a report of a very encouraging character as to the extent and value of the lodes. The directors considered that the report of Captain Nance justified them in deciding upon the propriety of introducing rock-boring machinery, so that the operations might be carried on more expeditiously and economically. Rock-boring machines, with the necessary appliances, have accordingly been sent out, and the directors expect that they will be shortly at work, and the works derive the benefit of their more rapid operation. Captain Nance considered that some points in the Huntington Mine ought to be differently worked from the way in which they had previously been, and he also found it necessary to provide additional boiler power. These changes have occupied a considerable time, and to some extent retarded the increased output which Captain Nance expected by this time he would be able to make. The benefit of these changes has not yet been manifested, but the directors believe that are long most important advantages will result from them.

Great improvements have been made in the ore dressing machinery, whereby the dressing cost can be reduced, and about 30 per cent. more of the output realised. Capt. Nance has strongly urged the propriety of putting down sufficient dressing machinery of the most improved description, not only to dress more thoroughly the ore now being put out of the mines, but also to obtain, as he is thoroughly satisfied he could do, a large additional quantity of copper from the waste heaps. The directors have been fully alive to the necessity of procuring this machinery, but the want of capital has prevented them as yet from ordering it.

The smelting works, in consequence of want of supply of ore, have not been kept in constant operation. The directors endeavoured to keep them employed by the purchase of matte or regulus from a neighbouring mine, but the high price charged for the matte has prevented the continuance of this supply on profitable terms. It must be apparent to all the shareholders that such works cannot be profitably employed unless regularly supplied with a full amount of raw material necessary to keep them in constant operation. The produce is of first-rate quality, and continues to be appreciated in the Canadian market. All the company's produce has found a ready sale, and the agents advise that they could dispose of a much larger quantity if they could be supplied with it.

The late manager, Mr. Thomson, has been relieved of his duties, and Mr. H. W. Edwards has been placed in charge of the smelting department. The directors have received the highest testimonials of Mr. Edwards' ability, and they have every reason to believe he will realise the expectations which have been formed of him. Capt. Nance has advised the directors that when the Huntington Mines are thoroughly developed and the necessary machinery in operation, the output of ore will be sufficient to leave profitable results. The carrying out of the operations referred to, however, and the necessity of having always a considerable amount of money sunk in stocks and copper, manufactured, and in process of manufacture, has taken up the available funds in the hands of the directors, and as it is of the utmost importance to obtain proper dressing machinery, and to carry on the operations to what the directors believe will lead to favourable results, it will be necessary to provide additional capital.

LEADHILLS SILVER-LEAD MINING AND SMELTING COMPANY.

The report of the directors, prepared for presentation at the meeting on Friday next, states that the profit for the year ending June 30, was 3524l. 19s. 4d. The adverse balance brought forward was 182l. 18s. 7d., leaving 3342l. 0s. 9d. for disposal. The statement of account shows that the balance of the preliminary law costs, stamp duties, &c., has now been written off. Ten per cent. of the cost of permanent works, machinery, cottages, &c., has also been charged to revenue, as usual. In the year 1877 tons of ore have been dressed, an average of 158 tons a month; 1577 tons have been smelted, yielding 1225 tons of pig lead; and 573 tons of ore have been sold. The smelting operations have this year resulted in a much more satisfactory yield, and with the improvements that have been continuously made at the mills we hope that the increased percentage of lead obtained from the ore will be at least maintained.

The quantity of lead recovered from the smelt again shows a very marked increase, the pig-lead made from the last clean up being 3452 bars, about 172 tons 12 cwt. If an excuse is needed for again calling attention to the steady progress made by our local managers in the improvements that have secured this result, we must plead the importance of the subject, which the following figures will amply demonstrate:—The pig-lead made from the smelt was 36 tons 4 cwt. in 1878, 57 tons 3 cwt. in 1879, 78 tons 18 cwt. in 1880, 113 tons 7 cwt. in 1881, and 172 tons 12 cwt. in 1882; thus, without taking credit for the fact that in the first of these years a larger quantity of ore was smelted than in any of the last three years, a saving of 135 tons 8 cwt. of lead in the past 12 months has been effected. This, at the present market price, represents 1932l., while the total value of the lead saved by these alterations has already amounted to considerably over 4000l.

Brown's Mine, from which about 80 per cent. of the returns are now coming, is opening up very satisfactorily, and a new steam engine has been purchased and erected at Wilson's shaft, as the hydraulic engine at Jeffrey's shaft was unequal to the increasing work. Some disappointment has been caused us by the rich run of ore seen at the 70 fm. level in December last, proving only a few fathoms long. The question whether gold in paying quantities exists in our sett is again under consideration, and a short time since Mr. R. K. Duff, who has had experience in gold mining, visited the property, at the directors' request, to endeavour to discover whence the alluvial gold has come, and samples of quartz, &c., from various places are now being tested.

HOLLOWAY'S OINTMENT AND PILLS—DISEASES OF THE BOWELS.—A remedy, which has been tested and proved in a thousand different ways, capable of eradicating poisonous taints from ulcers and healing them up, merits a trial of its capacity for extracting the internal corruptions from the bowels. On rubbing Holloway's Ointment repeatedly on the abdomen a rash appears, and as it thickens the alvine irritability subsides. Acting as a derivative, this unguent draws to the surface, releases the tender intestines from all acrid matters, and prevents inflammation, dysentery, and piles, for which blistering was the old-fashioned, though successful treatment, now from its painfulness fallen into disuse, the discovery of this Ointment having proclaimed a remedy possessing equally derivative, yet perfectly painless, powers.

LEAD ORES.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
Aug. 8—	North Grogwinion	25	£ 8 10 0	E. C. Goodhart and Co.
	Pierrefitte	30	19 12 6	Quirk, Barton, and Co.
10—	Talargoch	80	10 1 6	Walker, Parker, & Co.
	North Hendre	50	9 15 6	ditto
	ditto	50	9 15 6	Quirk, Barton, and Co.
	ditto	50	9 16 6	Walker, Parker, & Co.
	Rhosemor	40	9 16 6	Adam Eytton.
	ditto	40	9 15 6	Walker, Parker, & Co.
	East Long Rake	7	9 7 6	Adam Eytton.

BLENDE.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
July 31—	Prongoch	100	£ 3 4 0	Vivian and Sons.
	ditto	50	2 15 6	ditto
Aug. 9—	Talargoch	130	3 12 6	ditto
	ditto	130	3 12 0	Crown Zinc Company.
10—	East Roman Gravelis	20	3 3 0	Vivian and Sons.

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Has 24 years' experience in Mining and Smelting, and 10 years' experience of American Business and Law, offers his services at moderate charges for Reporting on Mining and other Property in any of the above-named States or Territories, gives correct, safe, and responsible advice as to securing full titles and possession and, as to best mode of utilising the property, will assist in settling existing difficulties by compromise, and in disposing of developed mining property when held at real value; offers his assistance for securing undeveloped mining properties at home prices. As to care taken in reporting, reference is made to the *Mining Journal* Supplement, April 1, 1876, containing a report on property of the Maxwell Land Grant and Railway Company; as to technical standing, to the prominent men of the trade—compare *Mining Journal* of Aug. 30 and Nov. 31, 1872, and *New York Engineering and Mining Journal*, Feb. 28, 1874.

Just published,

THE NORTH WALES COAL FIELDS
Being a series of Diagrams showing the Depth, Thickness, and Local Names of the Seams in the principal Collieries of the various districts, with Index, Geological Map, and horizontal sections across the Ruabon, Brymbo, Buckley, and Mostyn districts.

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THE IRON AND COAL TRADES REVIEW
The IRON AND COAL TRADES REVIEW is extensively circulated amongst the Iron Producers, Manufacturers, and Consumers, Coalowners, &c., in all the iron and coal districts. It is, therefore, one of the leading organs for advertising every description of Iron Manufactures, Machinery, New Inventions, and all matters relating to the Iron Coal, Hardware, Engineering, and Metal Trade in general. Offices of the Review: 7, Westminster Chambers, S.W.
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THE CORPORATION OF SOUTHAMPTON are prepared to RECEIVE WRITTEN PROPOSALS for CONTINUING the BORING in the WELL on the SOUTHAMPTON COMMON from the present depth of about 1317 feet from the surface of the ground, at per every additional 10 feet bored of about 6½ inches diameter. Further particulars can be obtained upon application to Mr. George Manwaring, Engineer, Municipal Offices, Southampton. Written proposals must be left at my office on or before the 21st instant.

No pledge is given to accept any proposal.
By order, R. S. PEARCE, Town Clerk.
Municipal Offices, Southampton, 4th August, 1882.

FOR SALE, A SULPHUR MINE of the value of about £4,000,000 sterling, situate in Italy, in the Province of Forlì (Romagna). For full particulars apply to Mr. NATALE DI GNO ADUCCI, Forlì. Correspond by preference in the French language. The owner desires to negotiate directly with the intending purchaser.

The principal sulphur mines in the Romagna are only five in number, including the above, which is the best. A company with large capital at its disposal could negotiate, whilst purchasing the above, for the others also, and thus secure the monopoly of the sulphur of the Romagna, which is reputed to be the best in all Italy.

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THE UNDERSIGNED would inform CAPITALISTS that they hold over ONE HUNDRED LICENCES for LAND in the various MINERAL SECTIONS of the Island, and are prepared to TREAT FOR A PORTION OF THE SAME, with a view of thoroughly prospecting such licences, and eventually working those upon which COPPER, LEAD, or other Mineral may be found. Each license comprises three square miles. Apply to—
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WESTMINSTER.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Devon.

IN the MATTER of the COMPANIES ACTS, 1862 to 1880, and of the LADY BERTHA UNITED COPPER AND TIN MINING COMPANY (LIMITED).

Notice is hereby given, that ALL CREDITORS of the ABOVE-NAMED COMPANY are required, on or before Saturday, the 19th day of August instant, to SEND IN their NAMES and ADDRESSES, and the AMOUNTS and PARTICULARS of their SEVERAL CLAIMS on the said company, to FREDERICK MARSHALL, Esq., the Registrar of the said Court.

FREDERICK MARSHALL,

Registrar of the above-named Court.

Dated Registrar's Office, Truro, this 8th day of August, 1882.

In the High Court of Justice—Chancery Division.

BATTEN v. THE WEDGEWOOD COAL AND IRON COMPANY (LIMITED), NORTH STAFFORDSHIRE.

WEDGEWOOD, BRINDLEY FORD, AND LANE ENDS COLLIERIES,

Situate near New Chapel, in the Parish of Wolstanton, in the County of Stafford.

THIS HIGHLY VALUABLE LEASEHOLD PROPERTY TO BE SOLD, BY AUCTION (with the approval of the Judge to whose Court this cause is attached), by Mr. JOSEPH COCKSEY, of the firm of Messrs. JOSEPH COCKSEY and SON, the person appointed to sell the same, at the North Stafford Hotel, Stoke-upon-Trent, on Wednesday, the 6th day of September, 1882, at Three for Four o'clock in the afternoon, in One Lot, and as a going concern, subject to conditions.

The above-named Collieries comprise a mineral area of 296A. 2R. 2P. or thereabouts. The Minerals include portions of all the well-known seams of Coal and Ironstone in the North Staffordshire coal district below and including the Brown Mine Ironstone.

The Burnwood Coal and Ironstone Seams are now in operation. The Plant consists of several pairs of Pit Shafts, with commodious Colliery erections, efficient Machinery, Tramways, Locomotive Railway sidings, and branches, and two Locomotive Engines, which, together with the Pit Trams and other Colliery Stocks, Office Furniture, Implements, and Stores, will be included in the sale.

The Biddulph Valley Branch of the North Staffordshire Railway passes through the property, and the Collieries are connected therewith by sidings and branch railways.

The Black Bull Passenger Station is near to the Brindley Ford Colliery within the northern boundary of the property.

Particulars, conditions of sale and plans, and any further information, may be obtained of Mr. J. VERNON MUGGERIDGE, Solicitor, Albert Buildings, Queen Victoria-street, London, E.C.; Messrs. STUBBARD, GIBSON, and CO., Solicitors, 21, Leadenhall-street, London, E.C.; Mr. CLARENCE HARCOURT, Solicitor, 13, Moor-gate-street, London, E.C.; and Mr. FREDERICK BERTHAM SMITH, Chartered Accountant, 53, Cannon-street, London, E.C.; of the Auctioneers, Paradise-street, West Bromwich; at the Wedgwood Colliery Offices, New Chapel, near Stoke-upon-Trent; and at the place of sale.

In the High Court of Justice—Chancery Division.

TO BE SOLD, pursuant to an Order of the High Court of Justice, made in an action BELL v. STOBBS, 1880, B. 128, with the approval of His Lordship, Mr. Justice CHITTY, by Mr. GEORGE RENTON, Jun., the person appointed by the said Judge, at the People's Hotel, Albert-street, Harrogate, in the County of York, on Thursday, the 24th day of August, 1882, at Four o'clock in the afternoon, all that FREEHOLD ESTATE, called the

HOLE BOTTOM ESTATE,

Situate in the Township of Dacre-cum-Bewerley, near the Market Town of Pateley Bridge, in the County of York, and containing 83 A. 2 R. 37 P., or thereabouts, of rich meadow and pasture land, with the suitable FARMHOUSES, COTTAGES, and BUILDINGS thereon, together with the right of working the extensive LEAD MINES which intersect the estate.

The estate to be offered for sale first in one lot, and if not then sold, in four lots. Particulars, plan, and conditions of sale may be obtained on application to Messrs. PATTERSON, SNOW, and BLOXAM, Solicitors, 25, Lincoln's Inn Fields, London; Mr. G. E. PICKERING, Solicitor, Leeds; Messrs. GREGORY, ROWCLIFFE, and CO., Solicitors, of No. 1, Bedford Row, London; Mr. GILBERT ROBINS, Solicitor, of No. 11, Pancras Lane, London, or of the Auctioneer, Harrogate, or Knaresborough; of Messrs. STOTHER and SON, Solicitors, Killinham, Ripley, Yorkshire; and of Messrs. KIRBY and SON, Solicitors, at Knaresborough and Harrogate.

In the High Court of Justice—Chancery Division.

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Situate near the High Road leading from Machynlleth to Llanidloes, in the County of Montgomeryshire, including a

MANAGER'S HOUSE, SMITHY, STOREROOM, AND COTTAGES,

Together with the excellent

MACHINERY, PLANT, STORES OF ALL KINDS, HORSES, CARTS, &c.

The sett immediately adjoins that of the Dyliffe and Dyfnwgan Mines. Two shafts have been sunk, and extensive operations have been carried on underground, and drawing and crushing and dressing machinery, and dressing floors, have been erected and laid out at an expense of upwards of £15,000.

The Machinery comprises two Water-wheels of large power, by one of which the mine is drained, and by the other the drawing machinery worked. The principal shaft has been sunk to a depth of 71 fathoms from the surface, and is fitted with pumpwork.

The Crushing and Dressing Machinery are in perfect working order, and upwards of 100 tons of lead and copper ore have been raised and sold during the last three years.

The Mine is held on lease from Sir Watkyn Williams-Wynn, Bart., for a term of 21 years, from December, 1874, at a royalty of 1-15th, with minimum dead rent of £20 per annum.

WHICH WILL BE SOLD, BY AUCTION, BY

HERBERT JOHN THURGOOD (of the firm of THURGOOD and Co.), the person appointed by the Vice-Chancellor, Sir JAMES BACON, at the Mart, Tokenhouse-yard, in the City of London, on Thursday, August 31st, 1882, at Two o'clock precisely, in One Lot.

The lease may be inspected at the offices of the Plaintiff's Solicitors, Messrs. LAST and SONS, 51, Queen Victoria-street, E.C., 14 days prior to day of sale, of whom particulars with conditions can be obtained; and of Messrs. GOODY and CO., Solicitors, Bridge Chambers, 171, Queen Victoria-street, E.C.; at the place of sale; of Mr. WILLIAMS, Manager at the Mine, who will show the property; or of the Auctioneer.

Messrs. THURGOOD and CO., 27, Chancery-lane, London.

COUNTY OF CARNARVON.

IMPORTANT TO SLATE QUARRY PROPRIETORS, CAPITALISTS, AND OTHERS.

SALE OF THE

BETTWS-Y-COED SLAB AND SLATE QUARRY.

MR. WM. ARTHUR DEW (of the firm of WM. DEW and SON) has been instructed by the Bettws-y-Coed Slab and Slate Quarry Company (Limited) TO SELL, BY PUBLIC AUCTION, at the Waterloo Hotel, Bettws-y-Coed, on Wednesday, the 16th day of August, 1882, at One o'clock P.M. precisely (subject to conditions then and there to be produced), the present company's INTEREST in the LEASE of the above-named extensive and valuable

SLAB AND SLATE QUARRY.

And also the COSTLY MACHINERY (which, together with the PLANT, BUILDINGS, and INCLINES, cost upwards of £9000), consisting of two 30-ft. water-wheels, five large Hunter's saws, capable of sawing the very largest blocks, one small ditty, one large common saw, and seven planes, and other necessary tools, all fitted up in the best manner, unequalled in any quarry in Wales.

The machinery, inclines, trams, roads, wagons, drums, &c., are in good condition. The whole of the machinery is driven by water-power supplied from the Elai lake and other sources, from which an ample and never-failing supply is obtained.

The water-wheels can be worked combined or separately, and either can drive all the machinery in the event of an accident.

The present lease expires Dec. 1, 1883, under which the royalties are 2s. a ton on slabs, and average about 1s. 2d. per ton on slates; but a NEW LEASE will be granted for a period of 60 years from Dec. 1, 1872, under which the present quarrying royalties on slates would be commuted to a fixed rate of 2s. 6d. per ton for the first 19 years, and 3s. for the remainder of the term, that on slabs remaining at 2s. per ton as at present.

This will be found to be a genuine and most promising slate quarry, as the quantity and quality of the slate rock already exposed most conclusively show.

The produce can be delivered on the railway for 1s. per ton.

Slits, lintels, string-courses, and building stone, in various forms, as well as railway platform and other copings and curbs (for which there is now a great and rapidly-increasing demand), can also be supplied in large quantities, and upon these, under an existing arrangement, 1s. per ton is only paid as royalty.

For further particulars apply to Messrs. GRIFFITH and ALLARD, solicitors, Llanfrest; G. W. M. HELLIER, Esq., Tanygarth, Bettws-y-Coed; and Mr. JOHN JONES, managing foreman, residing at the works; or of the Auctioneer, Well-field House, and Town Hall, Rhyl.

VALUABLE COBALT AND IRON MINES.

TO BE SOLD, the LEASE of FOEL HIRRADUG MINES situate in the parish of Cwm, near RHYL, FLINTSHIRE. Term unexpired, 17 years.

The above Mines are in course of development, and in active operation and production, and are worth the attention of capitalists. Cobalt ore of the value of £5500 has been raised and sold, and hematite ore to the value of £5000.

The Cobalt Mine is the only one at present worked in the British Isles, and was considered so unique, that at the last meeting of the Royal Geological Society, held at Penzance, a paper describing it by Dr. C. Le Neve Foster, Government Inspector of Metalliferous Mines, was read by Prof. Warrington Smyth.

For further particulars apply to—
Mr. M. A. GAGE, Rhyl, Flintshire.

SPECIFICATION OF MACHINERY (by SIMPSON and Co., London), at KILLE, LLANELLY, the property of C. W. MANSEL LEWIS, Esq.—

2 AUTOMATIC BORING MACHINES.

2 spare NON-AUTOMATIC ditto.

1 WROUGHT IRON DOUBLE STAND for working two machines at the same time, with Cradles, Ratchet Spanners, and connections.

1 10 inch AIR COMPRESSOR.

13 BORERS and 6 CROWN DRILLS (24 in. all).

1 2 inch Gun Metal full water-way CONE COCK and Union for Hose.

2 65 ft. lengths of 6 inch LEATHER DOUBLE BELTING, stretched and prepared ready for use.

1 16 inch cylinder HORIZONTAL STEAM ENGINE, with cold water Pump and Piping, and double-acting Feed Pump Governor, Starting Valve, holding down Bolts and Plates.

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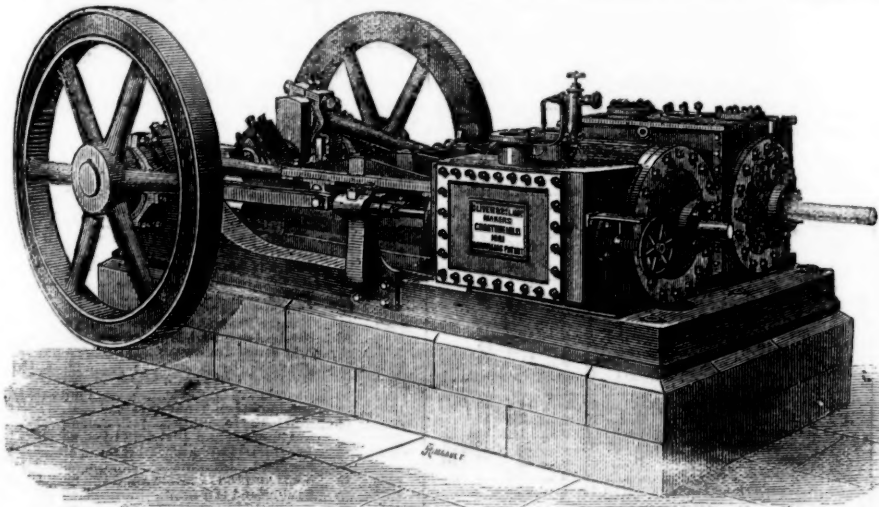


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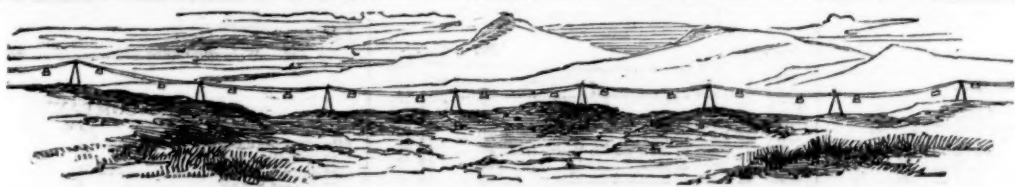
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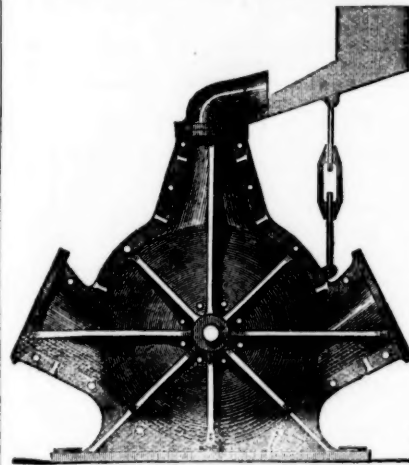
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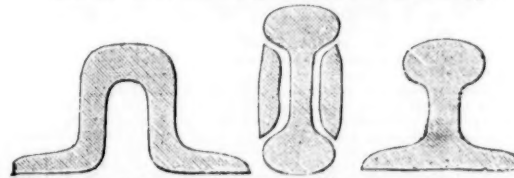
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BRITISH DIVIDEND MINES.

Shares.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
3200 Blue Hills, t, c, St. Agnes	4 6	6	1 1/4	11 1/2	0 0 0	May 1881
6000 Carn Brea, t, c, Illogan	9 7	11	1 1/2	11 1/2	0 0 0	Nov. 1881
10240 Devon Gt. Consols, t, c, Tavistock	1 0	0	0	5 1/2	0 0 0	Dec. 1880
4200 Dolcoath, t, c, Camborne	1 0	0	0	5 1/2	0 0 0	Dec. 1880
4000 East Pool, t, c, Illogan	0 9	9	55	52 1/2	31 6	0 0 0
12500 Frozeshill, t, c, Cardigan	2 0	0	0	5 1/2	0 0 0	Jan. 1882
12000 Great Holway, t, c, Flintshire	5 0	0	0	5 1/2	0 0 0	Feb. 1882
15000 Great Laxey, t, c, Isle of Man	4 0	0	0	17 1/2	18 1/2	0 0 0
6000 Green Hurth, t, c, Durham	0 6	0	0	8 1/2	3 11	0 0 0
20000 Grogwinion, t, c, Cardigan	2 0	0	0	0	0 0 0	0 0 0
10240 Gunnslake (Clitters), t, c	2 2	0	0	3 1/2	2 1/2	0 0 0
2800 Isle of Man, t, c, Isle of Man	25	0	0	5 1/2	5 1/2	0 0 0
6000 Kilfrisk, t, c, Glacewater	4 0	0	0	5 1/2	5 1/2	0 0 0
20000 Lendell, t, c, Lanarkshire	0 0	0	0	3 1/2	2 1/2	0 0 0
4000 Lishure, t, c, Cardigan	15	0	0	0	0 0 0	0 0 0
10000 McLanear, t, c, Hayle	2 0	0	0	5 1/2	5 1/2	0 0 0
9000 Minera Mining Co., t, c, Wrexham	5 0	0	0	10	8 10	0 0 0
20000 Mining Co. of Ireland, t, c, t	7 0	0	0	0	0 0 0	0 0 0
8000 Mona, t, c, Anglesea	5 0	0	0	5 1/2	5 1/2	0 0 0
11820 North Hendre, t, c, Wales	2 10	0	0	0	0 0 0	0 0 0
6146 Ditto	1 5	0	0	0	0 0 0	0 0 0
3000 North Levant, t, c, St. Just	13	0	0	9 1/2	8 1/2	0 0 0
4700 Penhall, t, c, St. Agnes	4 0	0	0	0	0 0 0	0 0 0
6000 Pennant, t, c, North Wales	5 0	0	0	5 1/2	4 5	0 0 0
12000 Penryn United, t, c, Linkinhorne	6 0	0	0	3 1/2	2 1/2	0 0 0
18000 Pr. Patrick, t, c, (a 12000 pf. 10 p.c.)	1 0	0	0	0	0 0 0	0 0 0
10000 Red Rock, t, c, Cardigan	2 0	0	0	0	0 0 0	0 0 0
12000 Roman Gravel, t, c, Salop	7 10	0	0	9 1/2	8 1/2	0 0 0
4000 Rhydalun, t, c, Wales	10	0	0	0	0 0 0	0 0 0
12000 South Cardigan, t, c, St. Just	1 5	0	0	10 1/2	10 1/2	0 0 0
5123 South Condurragh, t, c, Camborne	6 5	0	0	8 1/2	9 1/2	0 0 0
9000 South Darren, t, c, Cardigan	1 10	0	0	0	0 0 0	0 0 0
4000 South West Wales, t, c, Illogan	7 12	4	12	10 1/2	40 15	6 10
6000 Tincroft, t, c, Pool, Illogan	11 10	0	0	12 1/2	51 3	6 0
15000 Van, t, c, Llanidloes	4 5	0	0	5 1/2	25 10	6 0
12000 West Holway, t, c, Flintshire	1 0	0	0	1 1/2	1 1/2	0 0 0
512 West Tolgus, t, c, Redruth	98	0	0	14 1/2	15	3 0
2400 West Wheel Saxon, t, c, Camborne	5 0	0	0	20	11 10	3 9
6000 West Wales, t, c, Illogan	7 10	0	0	10 1/2	9 1/2	0 0 0
12000 Wheel Crebor, t, c, Tavistock	2 4	0	0	2 1/2	2 1/2	0 0 0
15000 Wheel George, t, c, Carnarvon	1 0	0	0	0	0 0 0	0 0 0
6000 Wheel Grenville, t, c, Camborne	15	0	0	10 1/2	10 11	1 7
4295 Wheel Killy, t, c, St. Agnes	5 12	0	0	1 1/2	12 18	6 0
3000 Wheel Peavor, t, c, Redruth	7 11	0	0	9 1/2	8 9	8 13

FOREIGN DIVIDEND MINES.

Shares.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
35500 Alamillos, t, Spain	2 0	0	0	1 1/2	2 5	0 1
13000 Almada and Tinto Consol., t	1 0	0	0	3 1/2	0 6	0 1
20000 Australian, t, South Australia	7 6	0	0	2 1/2	5 1/2	0 0
15000 Birdseye Creek, t, California	4 0	0	0	1 1/2	1 1/2	0 0
20000 Cape Copper Mining, t, South Africa	7 0	0	0	53	52 53	47 7
50000 Copiapo, t, Chile	3 8	0	0	3 1/2	1 17	9 0
70000 English and Australian, t, c, B. Aust.	2 10	0	0	1 1/2	3 0	9 0
2000 Eng.-Aus., t, c, Vict. (20000 o.)	1 0	0	0	3 1/2	0 3	8 0
25000 Fortuna, t, Spain	2 0	0	0	3 1/2	8 1	0 0
60000 Frontino, t, Bolivia, t, New Gran.	2 0	0	0	2 1/2	3 0	0 0
200000 La Plata, t, c, Leadville	2 0	0	0	2 1/2	1 1/2	0 0
15000 Linars, t, Spain	3 0	0	0	3 1/2	18 19	0 0
60000 New Quebrada, t, Venezuela	5 0	0	0	4 1/2	0 9	0 0
1000 Ditto, Debutentes	100	0	0	93	93	6 per cent.
3000 Oregon, t, Oregon, U.S. (pref. sh.)	4 0	0	0	0	0 2	6 0
50000 Panulillo, t, Chile	4 0	0	0	7 1/2	1 0	9 0
20000 Pitangui, t, Brazil (in 6000 £1 pd.)	0 10	0	0	0	0 0	0 0
14000 Pontbaid, t, c, France	20	0	0	11	23 17	6 0
100000 Port Phillip, t, c, Cluene	1 0	0	0	1 1/2	1 1/2	0 0
50000 Rara Fortuna, t, c, Argent. Republic	1 0	0	0	2 1/2	1 1/2	0 0
40000 Richmond Consol., t, Nevada	5 0	0	0	9 1/2	13 16	0 5
24532 Rio Tinto, t, c, Mortgage Bds., Huella	100	0	0	102	5 per cent.	0 0
325000 Ditto, shares	10	0	0	24 1/2	1 12	0 0
40000 Santa Barbara, t, c, Brazil	0 10	0	0	0	0 12	9 0
120000 Scottish-Australian Mining Co., t	1 0	0	0	1 1/2	10 p. cent.	0 0
60000 Ditto, new	0 10	0	0	0	10 p. cent.	0 0
25000 Sierra Buttes, t, California	2 0	0	0	1 1/2	2 1/2	0 0
40000 Ditto, Plumas	2 0	0	0	1 1/2	2 1/2	0 0
25000 St. John del Rey, t, c, Nevada	10	0	0	41	31 6	0 0
91896 Tharsis, t, c, Spain (31100 s. 77 p.)	10	0	0	41	31 6	0 0
20000 Tolima, t, c, Colombia (A & B shares)	5 0	0	0	3 1/2	2 1/2	0 0
25000 Victoria, t, c, Australia	1 0	0	0	0	13 10	0 0
100000 Victorine, t, c, U.S. Deb. Bds.	1 0	0	0	0	0 0	0 0
15000 Western Andes, t, c, U.S.	5 0	0	0	0	3 14	0 0
2100 W. Yunnan (55000 pref. sh. £10 pd.)	10	0	0	9 10	4 2	0 0
54600 Yorke Fen, t, c, South Aust. Pref.	1 0	0	0	1 1/2	3 0	0 0

Have made calls since last dividend was paid.

NON-DIVIDEND BRITISH MINES.

Shares.	Paid.	Last wk.	Clos. pr.
30000 Alston United, t, c, Cumberland	1 0	0	0
12000 Assheton, t, c, Carnarvonshire	5 0	0	0
11583 Bedford, t, c, Tavis (£1 lib.)	0 12	0	0
30000 British, t, c, Wrexham	1 0	0	0
30000 Beuno Consol., t, c, Flintshire	1 0	0	0
20000 Bwlch United, t, c, Cardigan	0 17	0	0
50000 Carn Camborne, t, c, Camborne	1 0	0	0
20000 Carnarvon, t, c, Carnarvonshire	1 0	0	0
37500 Carnarvon Consol., t, c, Llanrwst	2 0	0	0
30000 Carpell Consol., t, c, Stephens	1 0	0	0
45000 Cathedral Cons., t, c, Gwynnapan	1 0	0	0
20000 Central Foxdale, t, c, Isle of Man	1 17	0	0
25000 Coed-y-Fedw & Pant-y-Buarth, t	1 0	0	0
2450 Cook's Kitchen, t, c, Illogan	30 14	9	35
10000 Cornwall Great Cons. (4500 issued)	1 0	0	0
6400 Crook Burn, t, c, Cumberland	0 17	0	0
14000 Crosswood Mining Lands, t	1 0	0	0
10000 D'Eresby Mountain, t, c, Llanrwst	0 10	0	0
20000 Denbighshire Consolidated, t	3 0	0	0
12000 Derwent, t, c, Durham	1 0	0	0
50000 Devon, t, c, Tavistock	1 0	0	0
60000 Devon Friendship, t, c, Tavistock	1 0	0	0
12000 Devon Great United (21 shares)	1 5	0	0
50000 Drake Walls, t, c, Calstock	0 15	0	0
10000 Dubby Syke, t, c, Durham	1 0	0	0
12000 East Blue Hills, t, c, St. Agnes	0 5	0	0
12000 East Botolph, t, c, St. Just	0 12	0	0
6144 East Canard, t, c, Newlyn East	4 11	0	0
4000 East Chiverton, t, c, Perranarabuth	10 12	3	2
30000 East Craven Moor, t, c, Pateley Bridge	1 0	0	0
35000 East Herodsfoot, t, c, Liskeard	2 0	0	0
30000 East Long Rake, t, c, Wales	1 0	0	0
21000 East Roman Gravel, t, c, Salop	0 15	0	0
18000 East Van, t, c, Llanidloes	5 0	0	0
2048 East Wheel Rose, t, c, Helston	15 13	6	34
10000 East Wheel Rose, t, c, Newlyn East	1 0	0	0
10000 Gawton, t, c, Tavistock (21 shares)	1 13	0	0
40000 Glenroy, t, c, Isle of Man	4 0	0	0
10000 Goddards, t, c, Carnarvon	1 0	0	0
32000 Goginan, t, c, Cardigan	1 0	0	0
25000 Goodevere, t, c, St. Cleer	1 0	0	0
35000 Gorsead and Merthyn Con., t, c, Flint	2 10	0	0
20000 Great Drifft (10000 sh. issued)	1 0	0	0
100000 Great Polgoth United, t	0 5	0	0
6000 Great West Chiverton, t, c, St. Agnes	0 5	0	0
10000 Gwyn-y-Mynydd, t, c, Flint (pref.)	1 0	0	0
7000 Gwydyr Amal, t, c, Carnarvon	1 0	0	0
12000 Herodsfoot, t, c, near Liskeard	0 18	0	0
18000 Hingston Down, t, c, Calstock	0 12	0	0
20000 Kilmichael, t, c, (20000 issued)	1 0	0	0
25000 Kit Hill Gt. Cons., t, c, Carnarvon	0 15	0	0
15000 Lady Ann, t, c, St. Agnes	1 0	0	0
30000 Lady Ashburton, t, c, Callington	1 0	0	0
15000 Lady Bertha, t, c, Tavistock	1 0	0	0
25000 Langford, t, c, Callington	0 10	0	0
25000 Levant, t, c, St. Just	11 10	0	0
15000 Llandegla, t, c, Wales	1 0	0	0
5120 Lovell, t, c, Wendron	0 18	0	0
9000 Marke Valley, t, c, Linkinhorne	6 15	0	0
6000 Medlyn Moor, t, c, Redruth	0 15	0	0
28000 Mid-Devon, t, c, Wendron (34 pd.)	0 8	0	0
20000 Mona Consol., t, c, Anglesea	1 0	0	0
15000 Monkstown, t, c, Devon	2 0	0	0
20000 Mynnydd Gorda, t, c, Flint	1 0	0	0
10000 Mynnydd Gorda, t, c, Cardigan	4 0	0	0
12000 Morfa Du, t, c, Anglesea	1 0	0	0
8000 Mount Bays, t, c, Breage	1 0	0	0
6144 Mount Carnarvon, t, c, Carnarvon	1 0	0	0
2400 New Cook's Kitchen, t, c, Illogan	8 13	0	0
8000 New Dolcoath, t, c, Camborne	3 0	0	0
10000 New Great Wheel Vor, t, c, Breage	0 10	0	0
10000 New Holmbush, t, c, Callington	3 0	0	0
6000 New Killy, t, c, St. Agnes	0 12	0	0
12000 New Penrose, t, c, Helston	1 0	0	0
15000 New Redmoor, t, c, Callington	1 5	0	0
15000 New Tavas, t, c, Redruth	1 5	0	0
3500 New Tincroft, t, c, Lelant	6 0	0	0
12000 New Trumpet, t, c, Wendron	1 0	0	0
12000 New West Canard, t, c, Liskeard	0 4	0	0
30000 New Wheel Peavor, t, c, Redruth	0 10	0	0
35000 New Wye Valley, t, c, Montgomery	1 0	0	0
20000 North Alfred, t, c, Phillack	0 10	0	0
5328 North Bury, t, c, Scorrier	1 5	8	1
10000 N. D'Eresby Mount, t, c, Llanrwst	1 0	0	0
25000 North Goginan, t, c, Cardigan	1 0	0	0
6400 North Green Hurth, t, c, (3400 l. pd.)	0 2	6	34

NON-DIVIDEND MINES—continued.

Shares.	Paid.	Last wk.	Clos. pr.
25000 North Grogwinion, t, c, Cardigan	1 0	0	0
12000 North Moulton, t, c, Liskeard	0 10	0	0
50000 North Penryn, t, c, m. s. Devon	1 0	0	0
6000 North Penryn, t, c, Gwynnapan	2 7	0	0
2338 North Trekerby, t, c, St. Agnes	1 0	0	0
8000 Northern, t, c, Durham	8 17	10	34
40000 Okel Tor, t, c, c, Calstock	1 0	0	0
80000 Old Shepherds, t, c, Cornwall	1 0	0	0
12000 Pandora, t, c, Carnarvon	2 0	0	0
11612 Pant-y-Mwyn, t, c, Mold	2 0	0	0
6000 Parys Corporation, t, c, Anglesea	1 0	0	0
45000 Pateley Bridge, t, c, Yorks	1 0	0	0
6000 Pedn-an-dren, t, c, Redruth	2 13	0	0
12000 Pely Wood, t, c, Lanvay	0 5	6	34
6000 Pendarves United, t, c, Camborne	8 0	0	0
20000 Penegarg, t, c, Carnarvonshire	1 0	0	0
12000 Pen-y-Orsedd, t, c, Flintshire	1 0	0	0
15000 Perran Consol., t, c	1 0	0	0
12000 Perran Wheel Alfred, t	0 2	6	34
10000 Pioneer, t, c, Wales	1 0	0	0
3000 Polbreth, t, c, Crowan	1 0	0	0
10000 Polrose, t, c, Cornwall	1 0	0	0
10000 Port Nigel, t, c, Carnarvonshire	2 0	0	0
6000 Prince Royal, t, c, St. Agnes	1 0	0	0
12000 Prince of Wales, t, c, Calstock	0 17	0	0
15000 Royalt, t, c, St. Colum	1 0	0	0
38000 Russell United, t, c, Tavistock	0 15	8	34
30000 Silver Hill, t, c, Callington	1 0	0	0
30000 Sinclair, t, c, Whitford	1 0	0	0
40000 Solbridge, t, c, Horrabridge	1 0	0	0
6000 South Carbis, t, c, Redruth	0 10	0	0
35000 So. Devon Unit., t, c, Buckfastleigh	1 0	0	0
5000 South Dolcoath, t, c, Illogan	0 19	0	0
6000 South Penryn, t, c, Gwynnapan	2 7	6	34
6000 South Tolearne, t, c, Camborne	5 1	6	34
40000 South Wheel Crebor, t, c, Tavistock	1 0	0	0
2048 South Wheel Rose, t, c, Illogan	2 9	8	13
40000 Tamar, t, c, Bearalston	0 15	0	0